



UNIVERSITY OF
LINCOLN

**Cognitive Immobilisation in Dyslexic Higher Education
Students: Exploring Possible Triggers, Links with
Aspects of Memory and Fluctuating Emotional Status,
Informing Effective Coping Strategies**

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Abstract

The purpose of this small-scale, mixed methods study was to explore the temporary 'freezing up' of cognitive processing capacity experienced by dyslexic HE students in one UK University. The term, *cognitive immobilisation* (CI), is used in this work to define this phenomenon which occurs when dyslexic HE students have become so stressed in relation to their studies that they temporarily lose their ability to process and respond to incoming stimuli, reducing them to a mental state where they are briefly unable to think, act or even speak. The main aims of the inquiry were firstly, to discover the extent of the occurrence and possible triggers of CI in dyslexic HE students; secondly, to explore the relationship between this occurrence, individual variations in processing capacity relating to working memory/long term memory interactions and ipsative measurements of fluctuating emotional status; and thirdly, to investigate the efficacy of possible coping strategies, including those which have been employed successfully to manage similar phenomena in disciplines outside education.

Qualitative and quantitative data were collected from an initial online survey of dyslexic HE students (n=40); semi-structured interviews with Specialist Dyslexia Support Tutors (n=6) and assessments with 13 participants who took part in a yearlong study. Over the course of the study regular semi-structured interviews/monitoring meetings and diarised accounts of incidences of CI and self-reported assessments of emotional status took place with the students. Initial assessments were carried out with the participants using all nine indexes of TOMAL-2 to discover detailed profiles of their memory systems. The participants were assessed with The Self Image Profile for Adults (SIP Adult); The Beck Anxiety Inventory (BAI) and The Beck Hopelessness Scale (BHS) in order to provide baseline measurements of self-esteem/self-image; level of anxiety and level of hopelessness respectively. Participants were then required to self-report using these assessment tools during the latter two academic terms and record incidences of CI.

Analysis of the findings suggested dyslexic HE students are likely to experience CI more frequently than their non-dyslexic peers. Findings suggested that the participants who reported the highest frequencies of CI also had predominantly below average/well below average scores for all nine of the TOMAL-2 indexes and were more likely to miss assignment submissions than those participants who took study breaks or did not complete their course. However, study breaks/non-completion of courses was associated with levels of hopelessness which increased above co-occurring levels of anxiety, suggesting further research in this area may be advantageous. It was generally observed that fluctuations in self-image were mirrored by those of self-esteem.

Participants' feedback on the efficacy of a range of coping strategies. The study concluded by suggesting that closer attention should be taken in monitoring fluctuating emotional status in dyslexic HE students and matching the introduction of successful coping strategies to common triggers and appropriate timings within such students' academic work schedule. The inclusion of counselling-type support within the needs assessment provision could be made available within the 1:1 framework or provided in the form of regular drop-in meeting groups, to good effect.

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Chapter 1 INTRODUCTION

1.1 Identifying the problem

The purpose of this phenomenological study was to explore the temporary 'freezing up' of cognitive processing capacity experienced by dyslexic HE students in one UK University. The term, *cognitive immobilisation* (CI), is used in this work to define this phenomenon which occurs when dyslexic HE students have become so stressed in relation to their studies that they have temporarily lost their ability to process and respond to incoming stimuli, reducing them to a mental state where they are briefly unable to think, act or even speak. Cognitive immobilisation occurs when an individual's levels of stress and anxiety have exceeded their individual capacity to cope with such levels, with disturbing results.

“In the face of this rapid loss of basic operating skills, the dyslexic's concentration, which is always holding on by its fingernails anyway, then disappears, and the dyslexic enters a panic/stress loop that can leave him, literally, immobilised” (Scott, 2004, 60)

Stress is cumulative (Weiten, 2014) and if unchecked produces symptoms of anxiety which can eventually result in cognitive immobilisation. The impact of this experience has been described by many dyslexic HE students as lasting from a few hours to several days, occurring at differing frequencies and at various times during the academic year, particularly as assignment submissions are due or during exams. Cognitive immobilisation has been specifically cited as resulting in individuals missing submission deadlines, arranging study breaks or even leaving their courses before completion. Although this state may be experienced by anyone, the nature of neurobiological differences occurring in the dyslexic brain (Thomson, 2001; Scott, 2004; DfES, 2004; Alloway, 2011)

render dyslexic individuals more susceptible to this phenomenon, particularly in HE where higher order cognitive functioning is requisite for their level of study (Alloway, 2011).

Having found this phenomenon recognised in literature, particularly referring to dyslexic individuals disabled by their mounting anxieties, as an educator mindfully viewing these issues through the lens of inclusion, I am "...searching for the best means of helping students to reach their academic potential" (McEwan and McEwan, 2003:18). A wider search of literature relating to the occurrence of phenomena similar to cognitive immobilisation revealed a wealth of research findings offering coping strategies which had been successful in the management of its inherent debilitating effects, within disciplines outside education, such as sports, performing arts and business and life coaching. The phenomenon is variously termed 'choke' (Hardy, Jones and Gould, 1996; Hemmings and Holder, 2009; Weinberg, 2010; Kremer et al., 2012); 'stage fright' (Buswell, 2006; Bahmann, 2009) and 'business performance anxiety' (Peltier, 2010).

These coping strategies, not previously applied within education, gave rise to a perspective which suggested joining the two, so far disparate, types of support offered to dyslexic HE students – namely study skills support and emotional support – in addressing this problem. Previous research relating to the negative effects of dyslexia on academic performance has been exclusively either empirical via assessment and measurement of cognitive processing capacity and/or aspects of the memory systems (as in formally diagnosing dyslexia) or qualitative via the life narratives of dyslexic HE students (Pollak, 2005; 2009; Alexander-Passe, 2015; 2017).

This discovery appeared to provide “... evidence in the academic discourse to establish a need for the proposed research” (Wisker, 2012,148). In pursuit of new knowledge in this area, this investigation therefore combined empirical investigations of the occurrence of cognitive immobilisation in terms of the effects of dyslexia on cognitive processing skills, aspects of memory and fluctuating emotional status, with “...phenomenological reflection on data elicited by existential investigation...” of dyslexic HE students’ experiences (Creswell, 2014, 126).

This research project was designed to gather corroborative evidence from quantitative and qualitative data, to support my hypothesis of the existence and negative effects of the phenomenon of temporary loss of cognitive processing facility, particularly as experienced by dyslexic HE students. The purpose of the enquiry was to illuminate an understanding of the phenomenon; its triggers and its effects, thereby informing beneficial development of the support offered to dyslexic HE students. Chapter 2 elaborates on normal cognitive processing systems; how they are compromised for dyslexic individuals and the negative effects on dyslexic HE students’ academic performance.

1.2 Research focus and aims

By taking an innovative mixed methods approach to illuminate the phenomenon of cognitive immobilisation and applying my experience to this project, thereby studying this problem differently from previous inquiries (Carroll and Iles, 2006; Burden, 2005: 2008), I expected to see something that could not be seen before (Thomas, 2009; Thomson and Walker, 2010). Having reflected on the broader issues relating to cognitive immobilisation for some time, before deciding to

formalise my inquiry, my aims were not to provide yet another description of the phenomenon, its possible causes and observed outcomes, but to reveal

“...a social situation that is not usefully explicable simply with a framework of description...involved in the kind of study that is about feelings, perceptions and understandings” (Thomas, 2009, 9).

This inquiry also sought to quantify the emotional fluctuations of dyslexic HE students over a period of time, as well as providing baseline assessments of cognitive processing abilities, allied to aspects of the memory system and frequencies of experiences of cognitive immobilisation.

Stress results from an individual's belief that the demands of particular circumstances cannot be met with their available resources at the time (Ward, 2010; Briers, 2012). All individuals facing increasing levels of stress and anxiety, experience a decreased cognitive capacity for receiving and processing incoming information (stimuli), such as during academic activities. This is because some of their processing capacity is taken up in managing the 'fight or flight' basic, emotional status (associated with raised stress and/or anxiety) which takes neurobiological priority over the completion of academic tasks, which the brain perceives as 'non-threatening'. However, because literature supports the view that dyslexic individuals have significantly lower cognitive processing capacity than their non-dyslexic peers to start with (Thomson, 2001; Scott, 2004; DfES, 2004), most of the cognitive processing capacity available to dyslexic individuals in a state of raised stress and/or anxiety is quickly taken up with the 'fight or flight' priority, leaving little or no cognitive capacity for required concomitant academic processing. This characteristic of dyslexia is explained in more detail in the following Chapter 2, Literature Review.

I began to question whether the increased likelihood of dyslexic HE students' experiences of cognitive immobilisation, compared to their non-dyslexic peers, could be predicted in order to be avoided with timely, appropriate intervention by Specialist Dyslexia Support Tutors and/or professionals in the various student support services available at the University. Initial queries were crystallised into the following aims:

- to discover the extent of the occurrence and possible triggers of cognitive immobilisation in dyslexic HE students;
- to explore the relationship between this occurrence, individual variations in processing capacity relating to working memory/long term memory interactions and ipsative measurements of fluctuating emotional states;
- to investigate the efficacy of possible coping strategies, including those which have been employed successfully to manage similar phenomena in disciplines outside education;
- to use the findings of this inquiry for the improvement of specialist support for dyslexic HE students.

As Bell (2005) pointed out, the initial question when planning a research project concerns the identification of exactly what information is required and why, rather than deciding on the methodology at the outset. These aims therefore gave rise to preliminary questions concerned with what evidence was needed to establish the existence of cognitive immobilisation and what factors increase the likelihood of dyslexic HE students experiencing it. This led to considerations of the type of coping strategies currently used by dyslexic HE students and their perceived success, and whether there were other coping strategies which had

yet to be trialled in this area. Moving on from this was the question of how the recognised emotional aspects of dyslexia in HE students could be more effectively monitored and supported.

These preliminary research aims were further refined into the main research questions which ask, “What is the best way to collect (this) information?” and “When I have this information, what shall I do with it?” (Bell, 2005, 115). The main research questions appear at the end of this chapter and in more detail in Chapter 3, having been honed by a review of the literature. The research questions aim to link an expansion of existing knowledge, or new knowledge discovered, with ways of applying it practically (Trafford and Leshem, 2008), towards improving the specialist support offered to dyslexic HE students. Such improvement in specialist dyslexia support would be instigated by addressing a shared concern in order to inform remedial decision making in intervention planning in this field (McEwan and McEwan, 2003, 21; Gray, 2004; Sekaran, 1992). The final study is outlined in section 1.6 below, the research questions are listed in section 2.9 of Chapter 2 and a plan of the research design may be seen in Table 3.1.

1.3 Limitations of the study

The most significant limitations of this project related to the fact that it was a small-scale project, carried out by one part-time researcher in one UK University and was completed during one academic year. Apart from formal assessments, data to be analysed included the results of a 17-element online survey (n=40) and over 100 hours of verbatim transcription of taped interviews/monitoring meetings with participants (n=13) in the main, latter part of the project which ran from November 2015 to May 2016. As such, the findings could not reasonably be generalised to apply to the dyslexic HE student

population, but did reveal significant, new emerging patterns and shared characteristics which suggested links worth pursuing with a larger inquiry. In view of the considerable workload presented by this project, there was also no opportunity to include a comparative study with non-dyslexic HE students.

An unexpected setback at the start of the project was due to the lack of data held by the Wellbeing Centre in the University, which is responsible for organising the provision of specialist support for dyslexic HE students. Neither were there data available from the main Student Services Department of the University, referring specifically to the academic progress of its dyslexic students in terms of attrition rates of such students through non-completion or numbers taking study breaks. In any event, had there been relevant data it would not have been made available due to the University's confidentiality policies. It was suggested some information on missed or late submissions of assignments may be available from individual lecturers but attempting to request this was discounted as logistically unviable in this small-scale project.

The director of the Wellbeing Centre was also unable to forward the online survey questionnaire directly to dyslexic HE students at the University on my behalf, again citing the University's policies regarding confidentiality, which meant the questionnaire had to be emailed to all students at the University. To ensure only dyslexic HE students responded to the survey questionnaire, the accompanying instruction included a reminder of this, as well as the inclusion of questions requesting information from their dyslexia diagnostic assessment report. It was also clarified at the end of the survey questionnaire that volunteers wishing to continue their involvement with the main phase of the project would be required to present a current dyslexia diagnostic assessment report for scrutiny.

Because of the nature of the phenomenon being studied, there was always present the risk of exacerbating these problems for dyslexic HE students by asking them to take part in study, particularly the more substantive phase involving regular 1:1 meetings, in addition to their academic and social commitments. As well as remaining alert to any need to refer the participants to the University Counselling Service or the Health Centre if necessary, a prize draw for a £150 Amazon gift voucher (which I purchased) was included in the University's ethical approval for the project and entry to the draw was offered to all participants who completed the requirements of the final phase of the research as an incentive. For the most part, participants completed weekly self-reported assessments relating to their emotional status throughout the latter phase of the project, but in some cases, these were omitted, for instance during holiday periods or bouts of illness. Full details are given in Chapters 3 and 4.

Although the completed forms were reviewed during the 1:1 interviews/monitoring meetings every 2 or 3 weeks, the limitations of self-reporting in the absence of the researcher were acknowledged as possibly giving rise to an incorrect or incomplete picture, but this was balanced against the possible spontaneity of data recording (Cohen et al., 2007). Since it was necessary to model the completion of the self-reported forms during the initial interview with the participants, care was taken not to introduce any personal bias in my use of language in introducing these to the participants.

1.4 Context and broader issues

1.4.1 Assessment

Theorists agree that dyslexia results from brain differences leading to a cognitive variance in processing incoming stimuli (Department for Education

and Skills (DfES), 2004; Thomson, 2001). Someone with dyslexia may experience information processing difficulties to a greater or lesser degree, dependent on their individual profile of strengths and weaknesses. For dyslexic HE students whose academic work requires higher-order cognitive skills, such as reading and writing, this difference can be disabling (DfES, 2004; Alloway, 2011), instead of automatic and fluent as with non-dyslexics (Scott, 2004). The central role of memory on cognition is acknowledged by investigators in this field (Alloway, 2011).

Diagnostic assessment for dyslexia in HE students is required to include an assessment of the individual's short term/working memory but is not required to sample reliably a variety of memory functions that may be of clinical and theoretical interest, in considering the occurrence of cognitive immobilisation. Intricate mental processes relating to academic tasks required of HE students involve aspects of memory such as recalling a past experience, encrypting new experiences for future recall and identifying important facts from a mass of information (Reynolds and Voress, 2007). For this reason, the whole of the Test of Memory and Learning-2 (TOMAL-2) (Reynolds and Voress, 2007) was used during the current research project, allowing a comprehensive profile of memory functions to provide valuable data for further analysis. The full assessment includes nine Composite Indexes covering Verbal Memory, Nonverbal Memory, Composite Memory, Delayed Recall, Attention/Concentration, Sequential Memory, Free Recall, Associative Recall and Learning. (Only the Attention/Concentration index of TOMAL-2 is required for the diagnostic assessment for dyslexia for HE students.)

The resulting profiles for these aspects of memory and learning were analysed in relation to the individual students' fluctuating levels of emotional status in terms of self-esteem/self-image, anxiety and hopelessness (feelings about the future, loss of motivation and expectations). This ongoing analysis attempted to detect possible patterns or links between elements of students' TOMAL-2 profiles; frequency of incidences of cognitive immobilisation and their corresponding fluctuating emotional status. These fluctuations were measured regularly throughout the latter part of the project, using diagnostic assessments currently used by practitioners in the field. In addition to the Self Image Profile for Adults (SIP-ADULT) (Butler and Gasson, 2004) which was used by Carroll and Iles (2006) in their study of HE students who are dyslexic, the current project also employed the Beck Anxiety Inventory (BAI) (Beck and Steer, 1993) and The Beck Hopelessness Scale (BHS) (Beck and Steer, 1993). Further details of all four assessment tests, together with the methods of data collection appear in Chapter 3. Burden's (2005; 2008) findings highlighted the need for key variables, such as self-concept, self-esteem, self-efficacy and locus of control, to be identified and accounted for in research projects to provide clearer understanding of a positive or negative sense of identity.

1.4.2 Current specialist support for dyslexic HE students

The support provided to dyslexic HE students, as part of their Disabled Students' Allowance (DSA), is currently planned around an intervention programme designed to address study skills deficits. An individual development plan (IDP) is agreed in consultation with each dyslexic student, based on profile information and recommendations appearing in the dyslexia diagnostic assessment report and subsequent assessment of needs undertaken at the

University. However, diagnostic assessment for dyslexia is not required to assess emotional status, but reports scores under the general headings of cognitive ability (aural/visual/kinaesthetic with no reading or writing); achievement levels (e.g. reading, writing, spelling, comprehension) and diagnostic assessments (e.g. phonological awareness, phonological memory, speed of processing, short term/working memory). As Cooper (2009, 74) rightly points out, "All dyslexics are unique, even if most have much in common", so a holistic picture of an individual dyslexic student's support needs is not necessarily gleaned from these reports. Indeed, an evaluation of assessed deficits in a dyslexic student's profile when compared to that of a non-dyslexic peer can only give a quantitative measurement of such deficits. Without any attempt to qualify the nature of these deficits and possible individual causes and effects in terms of emotional impact, the assessment can only produce an incomplete picture of the dyslexic student's support needs (Cooper, 2009). In recent years, emotional issues experienced by dyslexic HE students have begun to be highlighted. Chapter 2 explores in more depth literature exhorting the inclusion of emotional status within intervention programs for dyslexic students.

Any dyslexic students appearing to display causes for concern relating to emotional issues are signposted by their Specialist Dyslexia Support Tutors, by way of the Wellbeing Centre, to the University's Counselling Service or Health Centre, as deemed appropriate. A waiting list for counselling services is maintained online by the Wellbeing Centre and during the time-frame of this project, Lucy waited 6 weeks for her first consultation appointment with a counsellor. There also exists a very limited drop-in facility at lunchtime on a first come, first served basis for the Counselling Service. Speaking from a

counsellor's point of view, Scott (2004, 61) endorses practitioners' observations that,

“For dyslexics, the experience of failure also leads to further anticipation of failure and the distortion of self-perception – academically and personally”.

Recent research has been concerned with the impact of living with the dyslexia 'label' on students' academic and social outcomes, particularly when they move on to higher education (Armstrong and Humphrey 2009; Wetherell, 2012).

Cooper (2009, 76) reported finding that the percentage of dyslexic HE students who take up the additional support offered to them varied considerably between universities. He also found that

“...those who received support were slightly more likely to pass their degrees than non-dyslexic students, whereas those who did not receive support were much more likely to drop out or fail than non-dyslexic learners” (Cooper, 2009, 76).

These findings agreed with the comments made by Specialist Dyslexia Support Tutors during interviews, detailed in Chapter 4. The comments of some of the dyslexic HE students taking part in the project, also detailed in Chapter 4, suggested a revision of the support offered was needed for it to become a more attractive use of the students' time.

1.5 Rationale and positionality

According to McEwan and McEwan (2003,18), “Education research has been termed both ‘...an elusive science’ (Lagemann, 2000), and ‘...a black hole’ (Miller, 1999)”. In an effort to reappraise the whole concept of specialist support for dyslexic HE students at the University, I wished to use my expertise as both an assessor and a Specialist Dyslexia Support Tutor, to apply “...conventional

research instruments in new fields of investigation” (Trafford and Lesham, 2008,16) in an effort to create new understandings of cognitive immobilisation, possibly identifying hitherto ‘blind spots’ in this field of inquiry.

Part of my role within the University during the past eight years has been to deliver study skills coaching to dyslexic under- and post-graduate students, to provide them with coping strategies commensurate with their various individual needs, thereby enabling them to access their course materials and successfully complete their course requirements. Dyslexic students joining the University for the first time and those identified as being at risk of dyslexia during their time at the University are initially referred to the University’s Wellbeing Centre, where their learning needs are assessed based on the recommendations in their Diagnostic Assessment Report, informed by formal assessment by an educational psychologist or a qualified assessor, such as myself, who holds an Assessment Practising Certificate (APC). APCs are granted, renewed and monitored by the SpLD [Specific Learning Difficulties] Assessment Standards Committee (SASC) (2005), a standard-setting steering committee concerned with the diagnostic assessment of specific learning difficulties in an educational setting, whose authority and remit stem from the SpLD Working Group 2005/DfES Guidelines. These guidelines draw attention to the fact that “...low self-esteem, often due to past humiliations, is especially apparent in mature students” (p6), and include an extensive list of ways in which SpLDs affect learning, including “...lack of confidence; particular susceptibility to stress, which may be associated with deadlines or examinations; noticeable inconsistency between what can be achieved on “good” and “bad” days’ (p7).

From the literature (see Chapter 2), dyslexic HE students need help to develop ongoing awareness of their emotional status and its concurrent significance in terms of their academic performance and achievement. Specialist support should be modified to further develop automaticity in students' application of higher-order study skills. The next step would be to explore collaboratively, individuals' blocks to the achievement of 'flow' in recalling automatic skills, to enable students to attain their best academic performance, while avoiding cognitive immobilisation.

I undertook this research project at my own behest and I intended my enquiry to be "... about developing practice and empowering practitioners" (Thomas, 2009, 113), as well as benefiting dyslexic HE students. I therefore anticipate the dissemination of the results of this enquiry to contribute to the development of dyslexia support intervention programmes in the University. The ideal support package to mitigate the experience of cognitive immobilisation for dyslexic HE students would offer them more effective support for the emotional aspects of dyslexia to enhance the study skills element. However, this should not consist of a 'bolt-on' addition, abraded to the current intervention programme as an 'annex', rather than melding the strands of support to form a synergy. It is fundamentally human to overlook the obvious and "...some of the tfgs (taken-for-granted) form quite powerful defences...which are difficult and painful to dislodge..." Brockbank and McGill (2012, 27). I therefore urge programme planners to forget the adage '...if it isn't broken, don't fix it', in favour of dismantling today's support system to allow fresh forms to emerge.

My positionality within this research project is defined in the ethics section of Chapter 3 of this work. I strived to balance the empathic tendencies of a practitioner mindful of the effects of dyslexia on the students who took part in

this inquiry, with a neutral stance when interviewing and recording sensitive data. However, in bringing meaning to my findings, I attempted to adopt a spontaneous disposition by further questioning corroborative evidence from multiple sources (Door, 2014). My aim was to be able to practise a “...pedagogy of hope” (Freire, 2006,1) with dyslexic HE students, rather than allowing perpetuation of hopelessness for those experiencing cognitive immobilisation.

1.6 Outline of the study

The aims of this inquiry, were set out in section 1.2 of this chapter. As a result of discoveries from the subsequent review of the literature covered in Chapter 2, the principal focus and aims of this research were further defined by the research questions stated in section 2.9 at the end of Chapter 2.

In order to gather data to address the research questions upon which this inquiry is based, a mixed-method design was used to collect pertinent corroborative evidence. The method included an online survey and for the more detailed analysis a group of 13 dyslexic HE students completed the regular interviews and self-reported assessments. The views and experiences of Specialist Dyslexia Support Tutors were added to the collected data. A full account of the methodology and methods employed during this project appears in Chapter 3.

The findings were analysed and discussed together, with reference to each research question to provide clarity for the reader and appear in Chapter 4. The work concludes with Chapter 5 which offers workable recommendations to include pastoral care within specialist study skills support, preferably taking a holistic stance. Further research is recommended where unexpected patterns have been identified, albeit in a small-scale project.

CHAPTER 2 LITERATURE REVIEW

2.1 Introduction

This review was structured firstly to define dyslexia as a specific learning difficulty (SpLD), elucidating its identification by assessment and its common characteristics. The appraisal of literature then proceeded to describe current models and explanations of dyslexia, seeking to clarify the cognitive aspects of dyslexia, including factors affecting these systems, leading to cognitive immobilisation in dyslexic HE students. Research findings relating the socio-emotional impact of dyslexia on HE students were then investigated in terms of the effects of labelling and issues of participation in HE academic work, together with the emotional and personal effects of dyslexia. Possible approaches to formal assessment of these issues were explored. Coping strategies used by dyslexic HE students and recommended in their intervention support were explored and evaluated, along with a study of coping strategies which had proved successful in alleviating phenomena similar to cognitive immobilisation in other fields of study outside education. Finally, the results of this review were drawn together with an examination of recommendations from research findings concerned with developing a more effective way of supporting the emotional aspects of dyslexia for HE students. This review therefore provided a sound grounding and direction for the research aims of this research project.

2.2 Dyslexia - definitions, identification and range of difficulties

The term 'dyslexia' is applied to one of a range of learning difficulties and is derived from the Greek '*dys*' meaning 'difficulty' or 'malfunction' and '*lexis*' meaning language, giving a literal translation of dyslexia as being a 'difficulty with words' (Ott, 1997). At one time, dyslexia was considered to comprise of

problems with reading alone, but all other facets of language including writing and spelling also come under the umbrella of the term 'language'. Often the appearance of these difficulties unexpectedly occurs with individuals who demonstrate average or above average cognitive abilities when speaking but are unable to match this level of skill when reading, writing or spelling. The smooth interaction of a number of different, specialised brain mechanisms enables the more complex cognitive processes, such as the translation of written symbols into speech forms, to be achieved (Snowling, 2000, 1). As the findings of research in neuroscience have progressed, the complexity of this explanation has given rise to more detailed explanations of the difficulties experienced by dyslexic individuals. Inevitably, definitions of dyslexia have been revised in response to the developing understanding of the nature of cognitive processing in dyslexic individuals.

2.2.1 Definitions

As the causes and characteristics of dyslexia become more widely understood, evolving definitions of dyslexia have been instrumental in the corresponding changes in the ways dyslexia has been assessed, identified and, most importantly, supported. The following definition was provided by the International Dyslexia Association (IDA):

“Dyslexia is a specific learning disability that is neurobiological in origin. It is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge” (Adopted by the IDA Board of Directors, Nov. 12, 2002).

This definition of dyslexia firmly cites it as being a 'disability' with all the associated negative connotations, such as slow, inefficient reading and comprehension; poor spelling skills, poor short term/working memory and slow speed of processing, resulting in academic progress which compares unfavourably with that of non-dyslexic peers, irrespective of cognitive ability. The effects on a dyslexic person having the 'label' are explored in more depth in section 2.5 of this Chapter and in Chapter 4.

In the UK, The Equality Act 2010 legally protects people from discrimination in the workplace and in wider society, having superseded the Disability Discrimination Act 1995. A disability under the Equality Act 2010 is a physical or mental impairment that affects a person's ability to carry out normal day-to-day activities. The adverse effect must also be substantial and long term.

"In some cases, people have coping or avoidance strategies which cease to work in certain circumstances (for example, where someone who has dyslexia is placed under stress). If it is possible that a person's ability to manage the effects of an impairment will break down so that effects will sometimes still occur, this possibility must be taken into account when assessing the effects of the impairment" (Paragraph B10, Guidance to the Definitions of Disability, Equality Act).

Notably, dyslexia is also identified as a disability within this definition. However, this definition establishes a dyslexic person's legal right to protection against discrimination, including within educational settings. It should therefore be noted that failure to provide adequate support for dyslexic individuals may invite litigation, emphasising the duty of care expected from educators to their dyslexic students. In the case of dyslexic HE students, with whom this enquiry is concerned, it is therefore expected that the specialist dyslexia support offered to them will enable them to achieve their academic goals. Until now this support in HE has consisted of study skills support, buoyed by the provision of counselling

and GP services offered by their university, effectively erecting barriers between academic and pastoral support. These barriers appear to arise from disparately qualified specialists who offer their services in isolation of one another, in the apparent absence of more widely qualified specialists employed within a system capable of providing a more seamless, holistic support system.

In recent years, dyslexia has been included under the umbrella term 'specific learning difficulties' (SpLD), along with such as dyspraxia and dyscalculia. The following is the working definition of dyslexia as set out in the Rose Review (2009) and is the standard definition included in the report provided to the dyslexic person, following formal diagnostic assessment of dyslexia:

- "Dyslexia is a learning difficulty that primarily affects the skills involved in accurate and fluent word reading and spelling;
- Characteristic features of dyslexia are difficulties in phonological awareness, verbal memory and verbal processing speed;
- Dyslexia occurs across a range of intellectual abilities;
- It is best thought of as a continuum, not a distinct category and there are no clear cut-off points;
- Co-occurring difficulties may be seen in aspects of language, motor coordination, mental calculation, concentration and personal organisation, but these are not, by themselves, markers of dyslexia;
- A good indication of the severity and persistence of dyslexic difficulties can be gained by examining how the individual responds or has responded to well-founded intervention" (The Rose Review, 2009, 9-10).

From my own practice and from unrecorded conversations with other specialist practitioners, 'well-founded intervention' is generally taken to address study skills deficits, as suggested by recommendations included in individual students' Diagnostic Assessment reports. Specialist Dyslexia Support Tutors are encouraged by the support agency employing them to signpost students appearing to present with emotional difficulties to the University's Student

Services. Although this definition omits the term 'disability' associated with dyslexia, when dyslexic students apply to university, they still have to apply for a Disabled Students' Allowance (DSA) if they wish to receive funding for their specialist support during their time as dyslexic HE students. For some, the label 'disabled' evokes negative self-esteem issues around their dyslexia at a time when they are experiencing added stress of being away from home, family and friends, while undertaking academic work with a much higher cognitive functioning requirement than they have been used to (Alloway, 2011). In addition, HE students are often unlikely to have experienced the level of autonomous learning expected within universities (Collins and Wolter, 2018), adding to the dyslexic HE student's burden of stress, rendering cognitive immobilisation more likely to occur.

Recent definitions of dyslexia portray it as a syndrome with a wide range of symptoms (Rose Review, 2009). Using this definition to discover a dyslexic individual's profile of strengths and weaknesses has been welcomed by practitioners in the field, who recognise the advantages of dyslexic individuals being credited with having particular skills which are higher than their non-dyslexic peers (Sousa, 2016).

2.2.2 Identification by assessment

Diagnostic Assessments for Dyslexia are undertaken by a qualified, experienced assessor who may be either an Educational Psychologist registered with the Health and Care Professionals Council or a specialist assessor holding a current SpLD Assessment Practising Certificate listed on the SpLD Assessment Standards Committee (SASC) website. A full diagnostic assessment confirming dyslexia is mandatory for a student wishing to apply for

a Disabled Students' Allowance (DSA) to cover some of the extra costs incurred due to dyslexia, while attending a UK university. The amount of the allowance depends on whether the course is full-time or part-time and on individual needs. It is not repayable by the student and is not means related. The DSA will help with the costs of key supports to aid learning, which may include a computer, specialist assistive software and non-medical helpers (Specialist Dyslexia Support Tutors).

In order to give a confident diagnosis of dyslexia, it is necessary to provide evidence of a marked discrepancy between literacy skills and/or tests of phonological processing and general ability. Specific learning difficulties are complex and everyone has strengths and weaknesses in their cognitive profile (Ott, 1997; Sousa, 2016). Generally, most skills would be expected to occur at a similar level. A full diagnostic assessment for dyslexia takes between 3 – 4 hours, depending on the individual being assessed. Currently approved tests for dyslexia assessment are listed on the SASC website and are chosen to assess measures of literacy attainment; general intellectual ability and cognitive processing skills. Literacy attainment tests involve single-word reading; non-word reading; oral and silent reading of continuous text assessing both reading speed and comprehension; single-word spelling and timed free writing. Additional tests of copying speed and précis writing are also sometimes included if the individual is intending to continue to Higher Education. General intellectual ability measures verbal and non-verbal ability. Cognitive processing assessments measure underlying cognitive processes, such as phonological skills, working memory and speed of processing, which are all associated with difficulties commonly experienced by dyslexic students. Any reports of visual disturbance by the individual being assessed are addressed initially with a

screening using coloured overlays and a recommendation for further investigation by an optometrist. Researchers have yet to discover a simpler but equally valid/reliable assessment battery for identifying dyslexia in HE students (Chanock et al., 2010; Walmington et al., 2013).

The results of a Diagnostic Assessment for Dyslexia are expressed as Standard Scores, which relate individuals to their peer age-group in a standard way and can be used to make direct comparisons between scores. Mid-average Standard Scores fall between 90 and 110 and represent the middle 50% of the population at the particular age of the individual being assessed. 100 is the mid-point of the mid-average range. There is a margin of error in all formal testing. The 95% Confidence Interval gives a range of scores within which we can be 95% confident the individual's 'true' score will fall. Confidence Intervals are useful to investigate whether there is a likely mismatch between various aspects of ability and attainment, and between ability and processing. A statistically significant score occurs when there is an unusually large difference between two scores. Since the tests used for such an assessment do not apply the same descriptors, for clarity and ease of score comparison, the following descriptors are used to describe performance throughout the report:

Standard Score	Performance Descriptor
131 & above	Well above average
116 - 130	Above average
111 - 115	High Average
90 - 110	Mid-average
85 - 89	Low average
70 - 84	Below Average
69 & below	Well below average

In 2014, Pino and Mortari carried out a systematic review of 15 critically appraised studies relating to how the inclusion of students with dyslexia could be fostered in HE and found that the most commonly reported disability for

2011-12 in the UK was SpLD (4% of the students enrolled). These figures were obtained from the Higher Education Statistics Agency (HESA). However, it should be noted that the figure for SpLD also included students who were dyspraxic or dyscalculic as well as dyslexic students. Further results relating to actual support issues of this review are included in discussions in Chapter 4. According to the HESA, in 2016/17 Specific Learning Difficulties (SpLD), including dyslexia, dyspraxia and other closely related difficulties, was identified for 109,915 UK domiciled student enrolments in the UK, including all years of full and part-time courses of all levels of study. This number does not take into account students from abroad with Specific Learning Difficulties. Additional funds from the Higher Educational Funding Council England (HEFCE) are available to universities for each student in receipt of a DSA.

2.2.3 Characteristics of dyslexia (range of difficulties)

Dyslexia occurs across a range of intellectual abilities resulting in individual profiles of strengths and weaknesses rather than a distinct type. SpLD Working Group 2005/DfES Guidelines state that

“In general terms those with SpLDs have particular difficulties, which may include spelling, acquiring fluent reading and writing skills and/or manipulating numbers which may indicate their performance is well below their abilities in other areas. They may also have problems with working memory, organisational skills, receptive and expressive language or oral and auditory skills, maintaining concentration and co-ordination”.

As Pollak (2005, xvii) observed, “...dyslexia clearly exists and is believed in by a great many researchers, educators and students”.

Theorists agree that dyslexia results from brain differences leading to a cognitive difference in processing incoming stimuli (Thomson, 2001; Department for Education and Skills (DfES), 2004; Stenneken, 2011; Sousa, 2016, 2017). Someone with dyslexia may experience information processing

difficulties to a greater or lesser degree as "...the reality is that we are looking at an individual difference" (Thomson, 2001,67) due to the highly individual nature of each dyslexic profile (Rowan, 2014). In processes requiring higher-order cognitive skills, such as reading and writing, this difference can be disabling (DfES, 2004; Alloway, 2011) instead of automatic and fluent as with non-dyslexics (Scott (2004).

In considering diverse definitions of dyslexia, "It is important to recognise that the value of a definition may be tempered by its purpose" (Elliot and Grigorenko, 2014, 6), therefore I do not propose to describe in detail current theories for the *causes* of dyslexia, as my immediate concern as a practitioner is with the *effects* of dyslexia on individual students. The modern view of dyslexia as a profile of strengths as well as weaknesses is most welcome and serves to identify dyslexia as a learning or processing style, rather than a learning disorder (Eide and Eide, 2011). As mentioned above, as dyslexic individuals become better understood as having a profile of strengths and weaknesses, as opposed to being 'disabled', their special skills are more often recognised. For instance, it is widely reported that successful "...entrepreneurs (are) five times more likely to suffer from dyslexia" (Eide and Eide, 2011, xv), although the use of the term 'suffer from dyslexia' does still carry historical tones of disability.

2.3 Models and explanations of dyslexia

Historically, researchers have focused on different characteristics of dyslexia, giving rise to different approaches to explain the causes of dyslexia.

Table 2.1 Causal Modelling Framework (Morton and Frith, 1995, In G.Backhouse and K. Morris (eds.), 2005)

ENVIRONMENT	BRAIN (the biological level)
	MIND (the cognitive level)
	BEHAVIOUR

The causal modelling framework advocated by Morton and Frith (1995) shown in Table 2.1 above has proved useful when considering diagnostic assessment. This model considers separately the biological level in that dyslexia is inherited genetically; the cognitive level which is concerned with cognitive processing skills including phonological processing, working memory, speed of processing and general ability; and the behavioural level which relates to all reading and writing skills. The assessment of the cognitive and behavioural levels was described in more detail above. It should be emphasised that academic work at HE level requires higher level cognitive skills, presenting further challenges to dyslexic HE students. Morton and Frith's causal modelling framework also links each of these three levels to environmental influences, both positive and negative, at home and in an academic setting, together with the effect of ensuing social and emotional factors. As Rack (2001, 19) observed,

“A complete theory of dyslexia must be able to integrate findings at the levels of genetic, neurology, cognition and behaviour”,

while acknowledging difficulties arising from the nature of dyslexia symptoms which may vary over time.

Past research has revealed neurological differences in dyslexic students in areas relevant to verbal short-term memory deficits (Nicholson, 2000; Snowling, 2000; Grigorenko, 2001; Scott, 2004). Researchers have attempted to define dyslexia in terms of a particular deficit or faulty cognitive mechanism, as an explanation for differences in cognitive processing between dyslexic and non-dyslexic people (McLoughlin et al., 2002; Ghani and Gathercole, 2013). The resulting three main scientific approaches have formed the basis for the following theoretical models: Focus on problems with phonological processing (Shaywitz, 1996; Frith, 1999; Snowling, 2001) gave rise to the phonological theory which posits that individuals with dyslexia are specifically impaired when attempting to store and/or retrieve word sounds, which would adversely affect their reading and comprehension skills. The approach concerned with problems with visual processing (Skottun and Parke, 1999; Stein and Talcott, 1999; Moores et al., 2011) gave rise to the visual theory which hypothesises that dyslexia is a strictly biological, visual disorder causing difficulty in processing alphabetic letters and sentences on a page, which would have an adverse effect on reading and spelling abilities. The cerebellar theory also makes the biological claim that the cerebellum of a dyslexic person is slightly dysfunctional, resulting in several cognitive deficits causing problems arising from a failure to develop automaticity in a number of skills such as reading and writing (Nicholson and Fawcett, 1995, 2001). The magnocellular theory attempts to merge these theories with the idea that the magnocellular dysfunction is generalised to all modalities and not simply restricted to the visual pathways (Barnes 2013:312).

In researching and applying the findings from these research areas, until recently, most of the literature about dyslexia has not only focused on children but has also tended to take a neuropsychological stance (Galaburda, 1999; Snowling, 2000;

Fawcett and Reid, 2004) and to use a 'discourse of disability' (Pollak, 2005: xvii). Clough and Corbett (2000, 8) identified a system of "...broadly medicalized ideas which essentially saw the *individual* as being somehow 'in deficit' and in turn assumed a need for a 'special' education for those individuals...", comparing this unfavourably with a "...*social construction* of special educational needs". By maintaining a portrayal of disability in place of focusing on profiled strengths when referring to dyslexic individuals in this way, this cannot but encourage a decline in their self-esteem. Chanock (2007, 33), quite rightly argued for "...closer communication among those responsible for current theory and practice in this area". Most studies of dyslexia have drawn on medical and/or educational models of dyslexia (Thomson, 2001; Burden, 2005), attributing dyslexic characteristics to neurological and learning dysfunction (Snowling, 2000; Fawcett and Reid, 2004). The current inquiry attempts to locate dyslexia within a sociological context by exploring the effects of fluctuating emotional status, in terms of self-image/self-esteem, anxiety and hopelessness (depression), in tandem with the more commonly used diagnostic approach when supporting dyslexic HE students. Macdonald (2009) investigated the impact that disabling barriers have in education and employment for people with dyslexia by analysing the life narratives of dyslexic adults, especially referring to their reactions to "... social-class positioning and institutional discrimination" (Macdonald, 2009, 247). By viewing discrimination as a social barrier, thereby redefining dyslexia as a social rather than an individual problem, this allows the development of a social model of understanding dyslexia. Contemporary thinking espouses a social model, blaming society and its environment, rather than the dyslexia itself as actually disabling the dyslexic individual (Goodley and Lawthorn, 2006; Cooper, 2009; Alexander-Passe, 2015; Hodkinson, 2016), often adversely affecting their self-esteem. However, the range

of strengths and weaknesses revealed in dyslexic individuals' profiles, obtained from a full diagnostic assessment (as opposed to a dyslexia screening), prove invaluable in practical terms towards the composition of individually-tailored intervention programmes to address their specific needs. However, following recommendations by Carroll and Iles (2006), Burden (2005; 2008) and Rack (2001) the effects of increased stress and anxiety on dyslexic HE students' academic performance, resulting from triggers associated with personal/family issues and low self-esteem associated with identifying with the 'dyslexia' label, in addition to academic issues, were afforded equal relevance within intervention programmes.

2.4 Cognitive aspects of dyslexia

In further defining cognitive immobilisation, it will be necessary to outline normal cognitive processing systems and what factors within the dyslexic profile may affect these systems, giving rise to incidences of dyslexic HE students experiencing this phenomenon.

2.4.1 Cognitive Processing Systems

The memory system is generally accepted as consisting of three main linked stages known as the sensory register, short-term/working memory and long-term memory. Figure 2.1 (below) shows Thomson's (2001, 111) model of the process by which incoming stimuli are initially registered by the brain where they are held for up to 4 seconds before being recoded to pass into the short term/working memory or discarded. Although the sensory registers have relatively large capacities, any stimuli not recoded during this time are lost. Normally up to 7 pieces of information (3-4 pieces in a dyslexic brain) may be held in the short-term memory for between 6 – 12 seconds where they may be recalled (retrieved) in their present form,

rehearsed or manipulated/conceptualised by the working memory before being further recoded and passing into long-term memory (Thomson, 2001). The long-term memory is potentially capable of storing a vast amount of information for an indefinite time. It is mainly semantically coded and accurate organisation is essential for efficient retrieval (Thomson, 2001; Barker and Barasi, 2008; Ward, 2010).

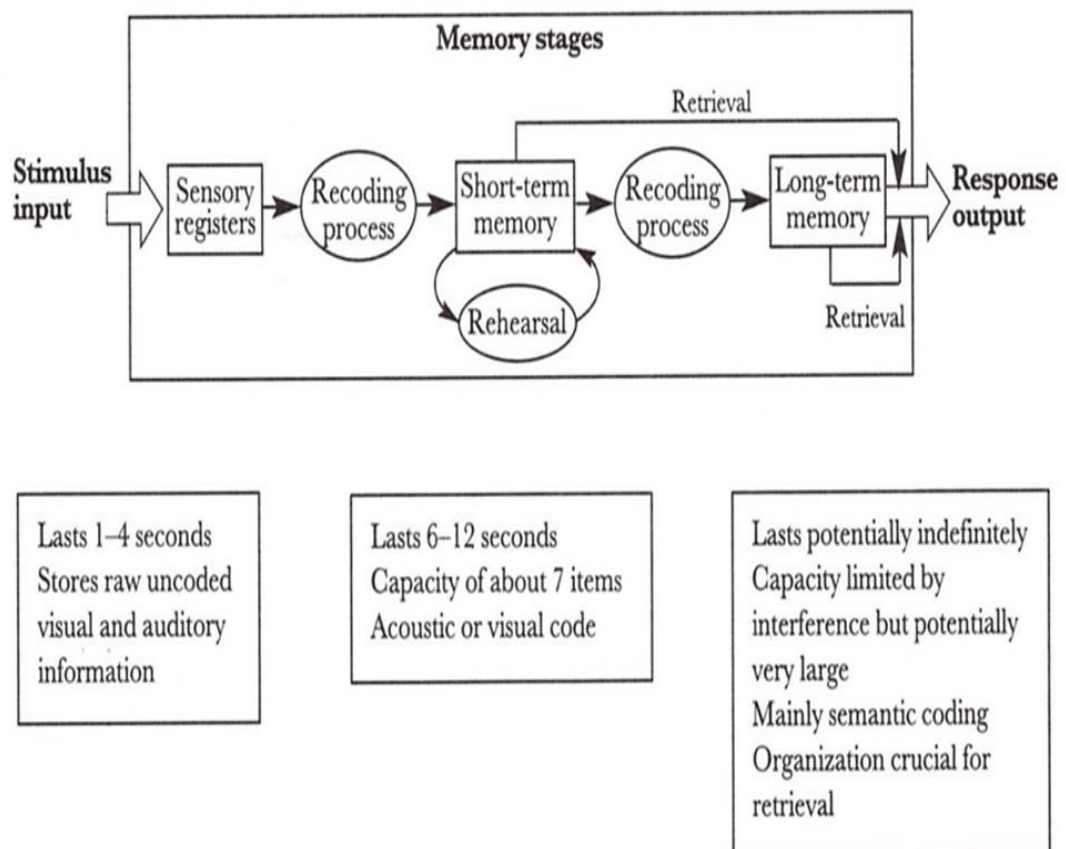


Figure 2.1 Multistore or Modal Model of Memory (Thomson, 2001,111)

Further details of the short-term memory mode, as illustrated in Thomson’s model shown in Figure 2.1, describes the working-memory used for manipulation of information held in the short-term memory, and its role in the execution of complex cognitive tasks, showing how information is recoded. As suggested in this model information can be retrieved directly from the short-term

memory immediately, or from the long-term memory. Interference which may limit the ultimate functional capacity of the long-term memory includes any cognitive processing difficulties associated with speed or accuracy of processing within the recoding or rehearsal stages indicated in Figure 2.1. It should be noted that most dyslexic individuals display slower cognitive processing skills than their non-dyslexic peers, meaning crucial elements of information may be lost before they are recoded within the memory system. Such losses may result in inaccuracies being ultimately recorded within the long-term memory. Other interference within this memory system, which may potentially adversely affect information stored in the long-term memory, may arise from faulty visual or auditory input or compromised cognitive processing of these initial incoming stimuli.

For a dyslexic HE student whose academic requirements involve complex cognitive processing skills, potential issues pertaining to their academic performance become immediately apparent, unsurprisingly causing increased anxiety and lowering self-esteem. Working memory, where the information in the short-term memory is rehearsed and manipulated, supports a wide range of complex cognitive activities including reasoning, language comprehension, long-term learning, and mental arithmetic (O'Connor et al., 2003).

Barnes (2013) describes three subcomponents of the working-memory model thus: The central executive is seen as the attention controlling system responsible for planning and monitoring action. This controls two slave systems: the visuospatial sketch pad, which manipulates visual images; and the phonological loop which stores and rehearses speech-based information and is important in planning and monitoring action. The concept of the phonological

loop (Figure 2.4) combines the articulatory loop and the acoustic store in Thomson's model (Figure 2.2). A fourth component called the 'episodic buffer' (Baddeley, 2000), was attributed with creating integrated units of visual, spatial and verbal information with chronological ordering or time sequencing and was also associated with long-term semantic memory.

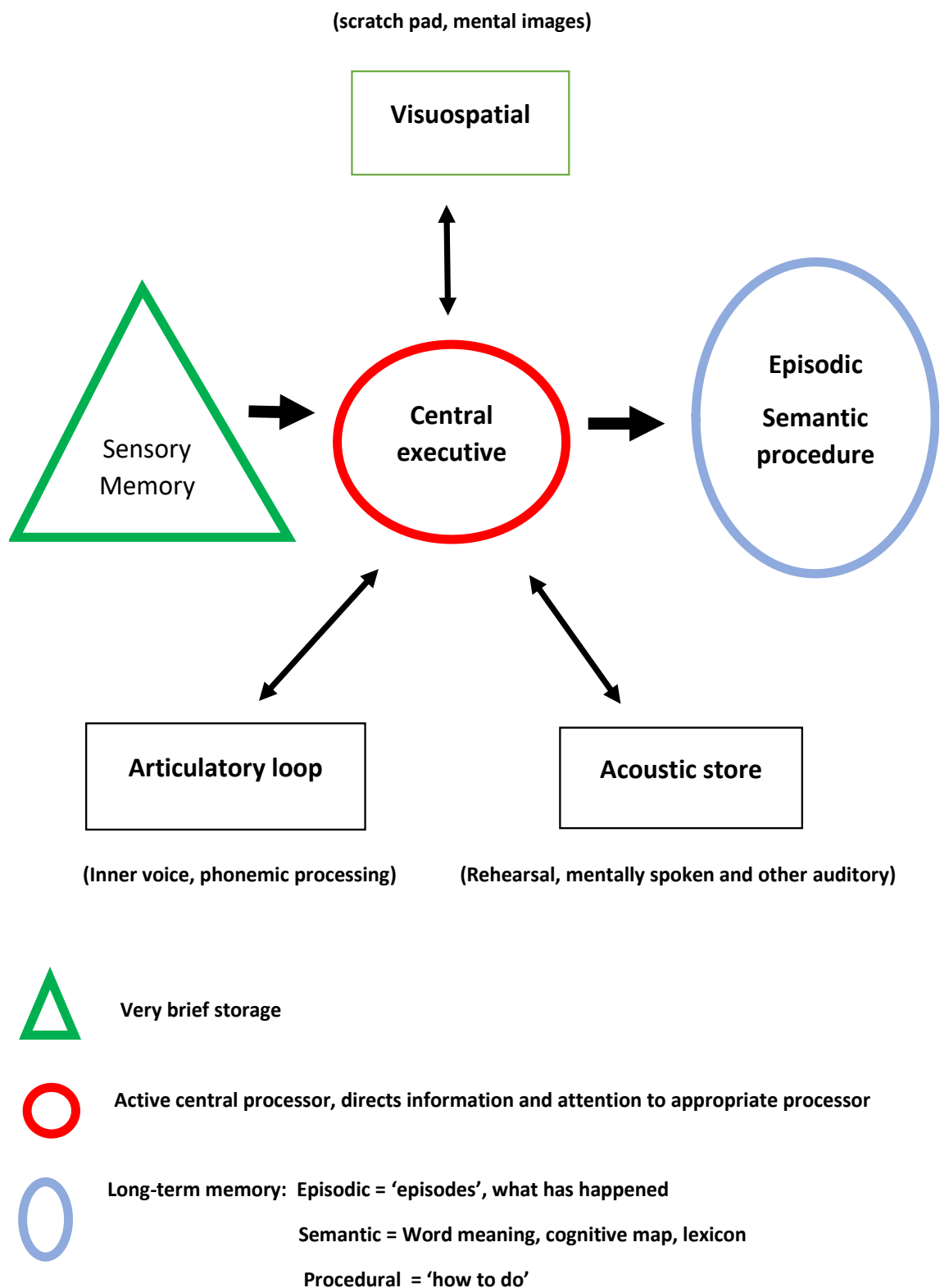


Figure 2.2 Memory systems (Thomson 2001:112)

To further contextualise the memory systems in terms of routes to learning, the major long-term memory pathways shown in Figure 2.2, *implicit* (information is

automatically learned) and *explicit* (information is learned by effort), are analysed.

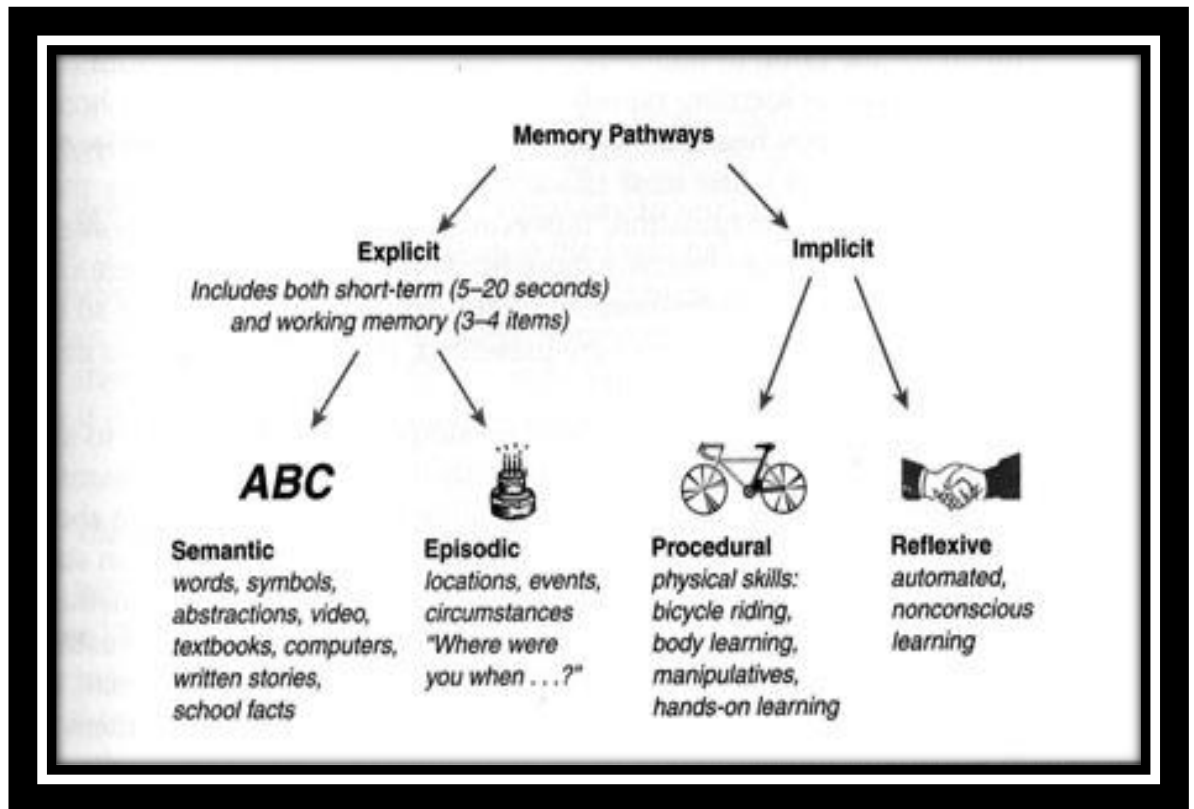


Figure 2.3 Memory Pathways (Jensen 2008,163)

Implicit memory involves both procedural and reflexive learning, resulting in an automatic ability to recall the information or reproduce the skill required. The brain deals with explicit information according to whether it is contextualised (*episodic* memory) or merely factual (*semantic* memory). Episodic memories connected to particular locations or circumstances are formed quickly, constantly, effortlessly and naturally by everyone (Jensen 2008). Episodic memories are easily updated and recalled using sensory clues associated with their contextualisation (Barnes, 2013; Ward, 2010; Alloway, 2011). Conversely,

semantic memory, which comprises most of the learning in HE, is formed through 'rote practice or memorisation' according to Jensen (2008,164).

Figure 2.3 further describes the memory pathways available for information to be passed to the long-term memory, drawing attention to the implicit memory pathways which do not involve short term or working memory (Nicholson and Fawcett, 1995, 1999; Jensen, 2008). These pathways are used to gain automaticity in the recall of information learned implicitly (e.g. the memory for riding a bicycle; reciting the times tables; reading or writing). Automaticity is achieved, usually by repetitive practice, when an individual is able to carry out a task as an automatic response without employing conscious thought (Nicholson and Fawcett, 1995). This concept resonates with the description of 'flow', described as eminently desirable in the field of sports psychology to enable an athlete to achieve optimum performance without engaging the working memory. Csikszentmihalyi (1990; 2002) reported that a state of loss of self-consciousness (flow) is the major condition for optimal learning. Flow occurs when people become so completely absorbed in an activity that they lose their self-consciousness and awareness of time and feel only the pleasure of their experience.

Modern theories of working memory have been developed from a model resulting from Baddeley's research (1981; 1990; 1992) showing the working memory comprising three major subsystems (see Figure 2.4). The Central Executive controls attention and the ability to focus and so determines what information is processed from incoming stimuli and what is disregarded. The Central Executive combines information from two temporary systems: the Phonological Loop and the Visual-Spatial Sketchpad. The phonological loop stores words and is used for remembering letters, words and numbers, whereas

the Visual-Spatial Sketchpad stores visual images and spatial position (O'Connor et al., 2003; Baddeley et al., 2015).

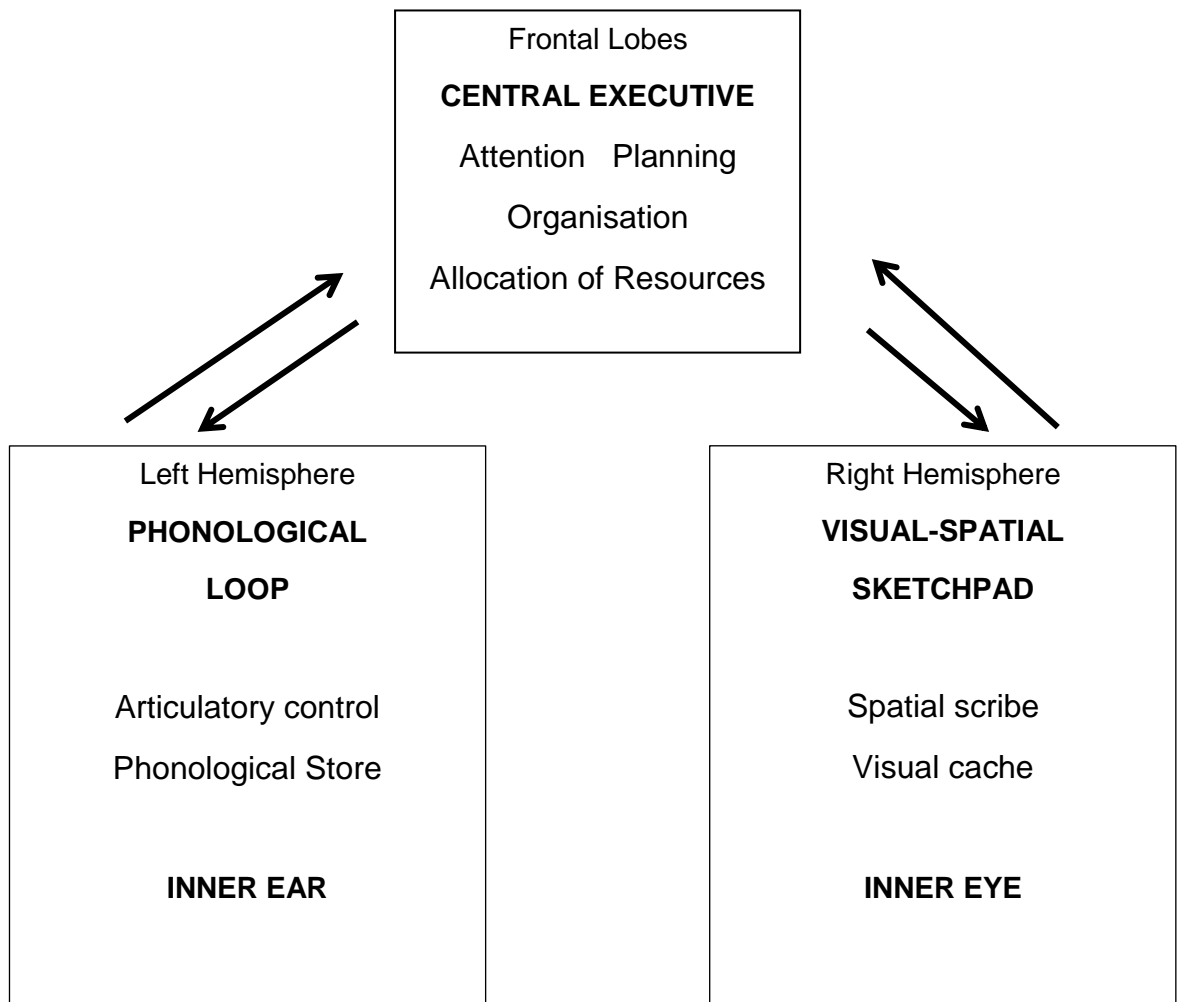


Figure 2.4 The components of working memory (Adapted from Cohen et al., 1993, cited in McLoughlin, Leather and Stringer, 2002, 16)

Any storage demand which exceeds the capacity of one of the temporary subsystems must be stored in the Central Executive, resulting in fewer cognitive resources being available for activities such as attention, planning or organisation (McLoughlin et al., 2002; Mortimore, 2008; Alloway, 2011), as shown in Figure 2.4. For dyslexic HE students this increased storage demand

will further exacerbate the overloading of an already reduced Central Executive, resulting in cognitive overload and possibly leading to cognitive immobilisation. Scott (2004) illuminated the causal explanations for the symptoms presented by dyslexic HE students who experience cognitive immobilisation thus:

“Anxiety jeopardizes the dyslexic’s already thin organizational skills, increases his clumsiness and reduces further his facility for automaticity. The added stress also disables the dyslexic’s fragile short-term memory so that he has effectively smaller working-memory storage or processing capacity to devote to a task” (Scott 2004, 60).

Higher level academic requirements need higher cognitive input and Cognitive Load Theory (CLT), developed in the 1980s, has been instrumental in identifying barriers to learning and devising strategies to surmount such difficulties (Kirschner, 2002; Kirschner et al., 2011).

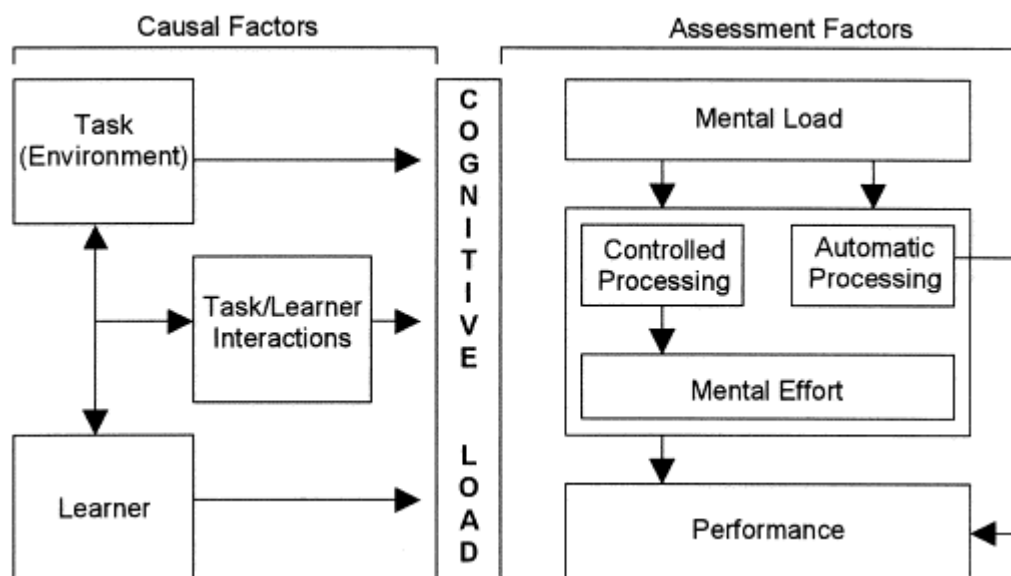


Figure 2.5 Factors determining the level of cognitive load
(Kirschner, 2002,4)

Kirschner (2002) explained that cognitive load (see Figure 2.5 above) is affected by both causal factors (the interaction of the cognitive abilities of the

individual; the complexity of the task and environmental considerations such as noise), and assessment factors which include mental load (imposed by the demands of the task and the environment); mental effort (cognitive capacity actually allocated to the task) and the individual's performance (which reflects mental load, mental effort and the current causal factors). Attention is drawn to the possible availability of a direct pathway of automatic processing contributing to performance, ostensibly omitting the 'mental effort' when controlled processing necessitates the working memory facility. Again, this cognitive processing route resonates strongly with the concept of 'flow' during an automatic performance or retrieval from the long-term memory.

Cognitive Load Theory (CLT) is inexorably linked to research findings particularly concerned with the working memory load (i.e. cognitive load) placed on the student during cognitive processing (Sweller, 1988; Bannert, 2002; McVay and Kane, 2012), involving interactions between long-term memory and working memory (Sweller et al., 1998; Ayres and Paas, 2012; Paas and Ayres, 2014). Smith-Spark, Henry, Messer, Edvardsdottir and Ziecik (2016a) found that dyslexic adults self-reported more incidences of problems with executive function (relating to cognitive overload in working memory, task monitoring, planning, and organisation) during their day-to-day activities than a non-dyslexic control group. These findings agree with those of Hatcher et al. (2002) and Ghani and Gathercole (2013) whose studies compared working memory and study skills performance of dyslexic and non-dyslexic adult students. As a result of their findings, Ghani and Gathercole (2013, 271) concluded that

“Improved awareness of memory strength and limitations may provide a valuable means of identifying for dyslexic students effective learning strategies”,

especially for post-secondary dyslexic students. The results of using a comprehensive assessment of aspects of memory in the current enquiry, shown in Chapter 4, may be interpreted as agreeing with the recommendations of Ghani and Gathercole.

According to Csikszentmihalyi (2002), a state of loss of self-consciousness (flow) is the primary criterion for optimal learning and performance. Although it is impossible to merely will this uninterrupted state of concentration into existence, it happens when people lose themselves in an activity, allowing them to overcome their anxiety and perform well without thinking about it, in much the same way as athletes or performing artists describe 'flow' performances (Hardy et al., 1996; 2007; Buswell, 2006; Bahmann, 2009; Hemmings and Holder, 2009; Peltier, 2010; Weinberg, 2010; Alloway, 2011; Briers, 2012; Kremer et al., 2012). In other words, 'flow' performance avoids explicit memory pathways by not engaging the working memory in reproducing a learned action or performance, that is, via an automatic response. The significance of automaticity in retrieval from the long-term memory, especially for dyslexic HE students has been discussed earlier in this section.

2.5 Cognitive immobilisation and its impact on dyslexic HE students

For the HE student who is dyslexic, compromise may occur at any stage where information held or recoded reduces cognitive efficiency (Selikowitz, 1998; Beilock and DeCaro, 2007; Smith-Spark, Ziecik and Sterling, 2016b).

Lieberman et al.'s (2005) and Holtzer et al.'s (2011) research findings suggested fatigue and stress negatively affect the efficiency of some aspects of the working memory, directing them to recommend further studies relating to

dyslexic HE students, whose experiences of stress and anxiety serve to increased stimulus input with the possibility of cognitive overload, thus leading to cognitive immobilisation at individual critical levels. A study by Nelson et al. (2015) found non-verbal ability and working memory to be particularly significant predictors of test anxiety suffered by dyslexic college students, who suffered up to five times as much as their non-dyslexic peers. This study examined two groups of college students, 50 with a specific reading disability (dyslexia) and 50 without in respect of their anxiety when they were required to undertake academic tests. The definition of dyslexia for the first sample reflects the American definition as the tests were carried out in Athens, Georgia. The inquiry used Leibert and Morris' (1967) still well-accepted model for the assessment, which consisted of two distinct aspects: The *emotionality* component referred to measurements of physiological reactions (e.g., increased heart rate, feeling jittery), and the *worry* component referring to cognitive, "...task-irrelevant thoughts" (e.g., "I'm going to fail this test") (Nelson et al., 2015, 422). The worry component of test anxiety was shown to be more negatively associated with performance than the emotionality component, which resonates with the negative effects of many dyslexic HE students accounts of their experiences associated with having the 'dyslexia' label. The possible effects on dyslexic students of having the 'dyslexia' label are discussed in more detail below in section 2.5.

Although research in HE recognises that cognitive overload will result from insufficient working memory resources being available for the execution of required processes, most of the work was concerned with the amount and complexity of the learning materials and the appropriateness/adequacy of the instructional scheme implemented in their presentation (MacCullagh, 2014). The

present study also explored the effects of emotional fluctuation on dyslexic HE students, whilst taking account of their lower individual profiles of cognitive processing capacity. This field of study has not been specifically addressed in previous enquiries to date.

2.5.1 Factors affecting these systems, leading to cognitive immobilisation in dyslexic HE students

Any factors affecting the smooth running of the processing systems previously described; the capacity and efficiency of any of the modes; the fidelity of the sensory inputs or the emotional state of the student will invariably have an impact on the overall proficiency of the memory (Mortimore, 2008; Alloway, 2011), and therefore on the student's potential academic success (Jordan et al., 2014). The semantic memory pathways associated with reading and studying which form a significant part of HE courses, are considered more difficult to establish and the brain will invariably access information on the episodic pathway before information on the semantic pathway (Jensen, 2008; Ward, 2010; Sousa, 2015). In describing the effects of dyslexic individuals attempting multitasking activities, e.g. speech, sequential memory or temporal stacking and applying them to written language, Thomson (2001, 79) observes we begin to see a 'system breakdown' due to working-memory overload.

Cognitive processing deficits are usually assessed and reported in the dyslexic student's diagnostic assessment report, where the assessor will give Standard Scores for such as short-term/working memory, visual or auditory deficits, speed of processing, rapid naming and reading comprehension, which are all fundamental skills needed by any student in HE. Inevitably, some or all may be

compromised in the dyslexic student's skills profile, affecting learning outcomes which are inexorably linked to students' successful completion of their academic courses (Alloway 2011). Petrides and Frederickson (2011) used the belief-importance (belimp) theory to study four main personality traits (Motivation, Hubris, Depression and Apathy) in relation to the A-level assessment results of 242 students (121 male and 117 female), all approximately 18 years of age.

This theory suggests that

“...personality traits confer on the individual a propensity to perceive convergences and divergences between their belief that they can attain goals and the importance that they place on these goals” (Petrides and Frederickson, 2011, 97).

It should be noted that the sample was not described as having Specific Learning Difficulties, such as dyslexia, or not. The findings of the inquiry acknowledged the individual effects of personality which may tie in to individuals' locus of control (expanded in section 2.5 below), depending on whether individuals believe they have some control over their success or whether they believe it is totally dependent on external forces. Individuals with an external locus of control who are also dyslexic and may also have a history of experiencing low self-efficacy, resulting from their educational experiences, may be even more likely to fail to achieve their goals. This agrees with Caprara's (2009,13) view that self-efficacy beliefs can “...turn positive orientation into optimal functioning”, provided an individual's locus of control is internalised.

More recent research on the working-memory has suggested it is ‘...one of the most important skills that predict learning outcomes’ (Alloway 2011,7), measuring the potential to learn, not what has been learned. As such, its link to

dyslexic HE students' capabilities to successfully complete their academic courses without succumbing to cognitive immobilisation is self-evident. Factors likely to adversely affect dyslexic HE students' optimal use of working memory have been identified by Alloway (2011) as: smaller memory capacity not matching the increase of quality and quantity of HE coursework, together with the pressure of time constraints rendering tasks unmanageable; cognitive overload (possibly leading directly to cognitive immobilisation), and the increased effort required by students with poor working memories increasing stress, anxiety and triggering cognitive immobilisation.

Sousa (2017, 50) accurately identified that emotional stimuli may override conscious thought so strongly as "...to cause temporary inability to talk ("I was dumbfounded") or move ("I froze"). He clarified this as a reflexive response that closes down all unnecessary cognitive activity and guides the brain's attention to the source of the emotional stimulus. This reinforced the findings of Oei et al. (2012) which suggested that the processing of emotionally significant stimuli becomes prioritised, at the cost of working memory performance, during periods of acute stress. The investigation was carried out by Oei et al. with 34 healthy men (no mention of any Specific Learning Difficulties or otherwise), half of whom were randomly assigned to acute social stress. Subsequently, all the participants performed a Sternberg Working Memory test (Sternberg, 1975) with emotional and neural distractors inside an MRI scanner. Brain activations observed during emotional distraction suggested that "...WM (working memory) performance after stress tended to be slower during emotional distraction" (Oei et al., 2012, 403), as the processing of emotionally significant incoming stimuli take priority over performance of working memory. These findings illuminated possible modern scientific explanations for loss of working memory processing

capacity during increased levels of stress and anxiety, as a result of shifts in the prioritising of emotional stimuli. For the dyslexic HE students who may be experiencing high levels of stress and anxiety, the debilitating effects of their already compromised working memory processing facility are likely to be further exacerbated.

2.6 Socio-emotional impact of dyslexia on HE students

Jacklin and Le Riche (2009, 735) explored the efficacy of various types of 'support' available to the HE student within the perceived changing needs of these students and suggested their findings recommended a re-conceptualisation from '*support*' offered in response to student problems towards the establishment of a more proactive '*supportive*' culture. Although the study involved the wider HE student population, it should be noted that not all dyslexic students are necessarily identified during their academic career, and indeed may prefer not to be; however, all students may benefit from such a reform. As Pollak (2005, xvii) confirmed, there has been very little literature which sets out the dyslexic person's point of view. Most research exploring emotional consequences of individuals with dyslexia has previously tended to centre on school-aged children, not those in HE.

2.6.1 Effects of labelling and issues of participation in HE

Nalavany et al. reviewed research findings, including those of Hellendoorn and Ruijsenaars (2000) and Madaus et al. (2008), and concluded that not all adults disclosed their hidden disabilities, such as dyslexia, in a work setting, interpreting that "...dyslexia has become a risk factor to success and a well-lived life" (Nalavany et al., 2011, 75). However, it should be noted that the sample for Hellendoorn's and Ruijsenaars' inquiry, undertaken in the

Netherlands, was only 27 which may be considered insufficient evidence to form a generalised opinion. The research findings of Madaus et al. (2008, 323) actually reported on the perceived employment satisfaction for 500 American graduates with learning disabilities, the majority of whom reported "...high levels of employment satisfaction as well as high levels of employment self-efficacy". However, as Alexander-Passe (2015, 80) pointed out "...without disclosure, no 'reasonable adjustments' and mentoring are possible", highlighting the advantages of disclosure. Nevertheless, disclosure of dyslexia is a personal choice and as Oslund (2014, 29) emphasised "No-one has the right to take this personal decision from the individual." Dyslexic teens and adults commonly report adverse links with education, associated to negative self-identity (Ingresson, 2007; Griffin and Pollak, 2009; Nalavany et al., 2011; Alexander-Passe, 2015; 2017).

Researchers are divided regarding the effects on the dyslexic student in HE of being 'labelled' after being identified through diagnostic assessment (Elliot and Grigorenko, 2014). Many researchers have found the label as seen to stigmatise the dyslexic individual, affecting their overall self-concept, with the risk of feelings of learned helplessness and depression (Hellendoorn and Ruijsenaars, 2000; Burden, 2005, 2008; Corkett et al., 2008; Griffin and Pollak, 2009; Yeager et al., 2014; Alexander-Passe, 2015). Pollak (2005, 139) opined that

'Definitions of dyslexia lead to discourses of it, which in turn affect these people's sense of self and identity. Internalising such discourses shapes their affective and social responses to the label'.

Pollak proceeded to observe that for those identified before admission to HE, the various discourses are likely to influence their routes to university. Some

HE students who are identified as being dyslexic for the first time after they have been admitted to university, as well as those who are identified after struggling with their academic work for some time, find their "...self-concept was powerfully affected by the experience of formal assessment for dyslexia" (Pollak, 2005, 91). This experience may well provide sufficient stress to trigger cognitive immobilisation. However, Scott's (2004) work in combining effective counselling with effective teaching reported this approach renders dyslexia more manageable, or even a source of empowerment to dyslexic individuals, thereby allowing them to learn from others through the shared experience of belonging to a group. This view was also shared by McLoughlin et al. (2002), Cooper (2009) and Alexander-Passe (2015).

When students are identified after admission, their university experiences may be modified by the discourse of dyslexia that they adopt. Griffin and Pollak (2009, 23) found that the views of dyslexic students in HE depended on how their neurodiversity was viewed: Seeing dyslexia as a difference, profiling strengths and weaknesses, was associated with greater career ambition and academic self-esteem; whereas taking a medical/deficit view, dyslexia was regarded as a disadvantageous medical condition. Griffin and Pollak's findings also saw many of the participants reporting similar experiences in education and with university support; many reporting feeling inadequately supported by their institutions. Cooper (2009, 87) went so far as to suggest that there "...remain significant barriers to achievement which leave universities vulnerable to litigation..." under current legislation. Cooper's comments referred to the legal requirements for inclusive education set out in the Disability Discrimination Act 2005 which have since been extended and superseded by those of the Equality Act 2010.

Similar negative connotations regarding "...educational and career problems" described by 27 dyslexic students during in-depth interviews, were reported by Hellendoorn and Ruijsenaars (2000, 227). These students also reported that their "... school experiences were mostly negative" although family support was considered more positive. Yeager et al. (2014) also found that labels, once given, tended to define a person forever, regardless of any progress made. Burden (2008) agreed with the findings of Corkett et al. (2008) and Hellendoorn and Ruijsenaars (2000), that initial low academic self-concept decreased further as students progressed through their academic career, potentially increasing the likelihood of cognitive immobilisation occurring. Indeed, Corkett et al. (2008) identified the lack of a label as possibly allowing a student to maintain self-confidence.

However, conversely, Scott (2004, 31) believed

"...most dyslexics are so relieved to have a label for their perplexing problems that the label itself becomes fondly associated with relief from stress."

Burden (2008) highlighted the need for key variables, such as self-concept, self-esteem, self-efficacy and locus of control, to be identified and accounted for in research projects, in order to provide clearer understanding of a positive or negative sense of identity. As previously outlined, many dyslexic HE students have described histories of negative educational experiences which they have attributed to the characteristics of their dyslexic profile, prior to commencing their studies at university. Carroll and Iles (2006) replicated Riddick et al.'s (1999) study of separate assessments of state and trait anxieties to discover whether anxieties had become 'stable debilitating traits' but these findings were

only linked to reading ability. To clarify, state anxiety refers to the level of anxiety felt by an individual as a result of an event and is usually a temporary experience, whereas trait anxiety refers to the consistent level of anxiety experienced by an individual as a personal characteristic. In the latter case, stressful events are likely to add to an already heightened anxiety level (Maltby et al., 2013).

Burden (2008) concluded that measurement of low self-esteem, as explored by Carroll and Iles (2006), would be more informative when linked to resultant expressions of negative feelings. He urged the application of theoretical approaches such as Bandura's (1997) theory of self-efficacy which suggests that focus may be shifted from global self-esteem to specific locus of control, internal or external, depending on whether individuals believe they control their success or whether they believe it is totally dependent on external forces respectively. The present study sought during interviews, participants' personal views on the impact/effect of labelling they had perceived as dyslexic HE students, in order to address this gap in the literature. This has already been done, but not in tandem with quantitative data gathering to be used to triangulate findings, thereby strengthening the validity of the results.

2.6.2 Emotional and personal effects of dyslexia

In order to gain some insight into the socio-emotional aspects of dyslexia, it has been necessary to augment research findings relating HE students with those relating to non-HE students, in the anticipation of discovering common ground. No statistical data relating to dyslexic HE students taking study breaks or leaving their academic courses without completing, due to cognitive immobilisation or otherwise, was discovered, including from the University

where the present study was undertaken. Such data could have served as an important starting point to discover any common patterns in reasons for dyslexic HE students' requests for study breaks or non-completion of courses. Further investigation may then have aided the early identification and subsequent referral of HE students suspected of experiencing critical anxiety and/or stress levels, for support from the University Counselling Service and/or the Health Centre.

The monitoring of increased emotional experiences of HE students in tandem with their ongoing academic achievements, may provide a more holistic evaluation of HE students' progress and enhance their learning development. The findings of Jordan et al.'s (2014, 227) small-scale inquiry "...imply that students with dyslexia have relatively poor academic mental health". Jordan et al. identified a relatively narrow focus in the scope of assessment of the outcomes of research relating to academic mental health, in that most inquiries involving dyslexic students relate to reading skills or general academic performance (Burden, 2008). However, in response to calls from researchers to take account of the fluctuating emotional status of dyslexic students, in addition to the adverse effects on academic achievement of difficulties arising from a dyslexic cognitive profile (Carroll and Iles, 2006; Burden, 2005; 2008), there has been more interest in combining studies of these interdependent areas (Pollak, 2005; 2009; Alexander-Passe, 2015; 2017; Cameron; 2016).

Commenting on the attempt to link neuroscience with education, Zadina (2015,75) observed that

"...nurturing the cross-fertilization of ideas and paradigms and refining our vision of the Educational Neuroscientist can lead to change in both fields and the emergence of ideas that can revolutionize education".

Zadina acknowledged, however, that attempts to merge disparate fields of study may seem to be “...a bridge too far” in the early stages of such collaboration (2015, 75). Consequently, modern thinking recognises strong links between mind, body and emotions in ensuring our survival, by way of optimal decision-taking and subsequent action, although this was also recognised by Damasio in 1994 (cited in Jensen 2008, 82):

“Our emotions help us focus our reason and logic. Our logical side may help us set goals, but it is our emotional side that provides the passion to persevere through trying times.”

LeDoux (1996, 289, cited in Jensen, 2008) recognised that over-arousal is likely to cause an individual to become “...tense, anxious and unproductive”.

Cameron (2016) analysed the experiences of three dyslexic University students who kept reflective diaries for three weeks before being interviewed about their recorded experiences, discovering four shared themes: “...*getting things out of my head; holding back- performance as risk; ever-present inner voices – effort of constant self-monitoring; and not belonging in academic spaces – metaphors of misfit*” (Cameron, 2016, 223). These four themes echo the previously mentioned findings relating to low self-esteem, the tendency for procrastination and a general feeling of exclusion many dyslexic HE students have reported. Cameron’s findings emphasised that attention to the emotional status of students with the dyslexia label is as important to providing an equitable learning environment, as is knowledge of their cognitive differences.

2.6.3 Stress

Literature and anecdotal evidence from specialist practitioners and the students themselves have revealed common factors adversely affecting the stress levels

of dyslexic HE students, over and above those of their non-dyslexic peers, with the concomitant disadvantages to their academic study capabilities. Many dyslexic HE students may be more likely to encounter more pressure than usual as a result of living away from home for the first time, bringing with it added personal responsibilities, with less close family support. Hellendoorn and Ruijsenaars (2000) reported that dyslexic students considered family support as being positive but often dyslexic HE students are living away from home while attending university, so this support is not so readily available to them. One theoretical lens that explains why personal difficulties can have detrimental effects on study is highlighted in the work of Maslow. Maslow's well-known Hierarchy of Basic Human Needs, published in 1943, is based on ensuring that lower needs are met before moving upwards in a step-by-step progression from *physiological, safety, belonging, esteem* to *self-actualisation*. Maslow later added *intrinsic values* as a sixth motivational need (Guest, 2014). When the basic needs of dyslexic HE students are not met adequately, including their need for appropriate and adequate academic support as well as for their wellbeing, by way of referrals to the University Counselling Service or the Health Centre, their levels of stress and anxiety will inevitably increase. Jensen (2008) identified that chronic stress impairs students' ability to prioritise tasks by importance, which could be related to dyslexic HE students' attempts to progress successfully through the levels of Maslow's Hierarchy of Needs, to be able to successfully complete their academic work. For most individuals, increased emotional status would appear to be the most frequent cause of cognitive immobilisation.

"Our thinking is not "contaminated" by emotions. Rather, our emotions are an integral aspect of the neural operating system" (Jensen 2008, 83).

Emotional status may be governed variously, and by varying degrees, by stress and anxiety or by the interaction of individuals' self-perception in terms of low self-esteem. However, everyone individually experiences *good* stress (*eustress*) giving rise to a challenge we believe we can cope with, as well as experiencing the negative form of stress (*distress*) when we feel threatened by some physical or emotional danger, intimidation, embarrassment, loss of prestige, fear of rejection or failure, unrealistic time constraints, or a perceived lack of choice (Jensen, 2008; Barnes, 2013). However, it should be noted that everyone does not find the same events equally stressful (Steptoe, 2007) since feeling stressed depends on how events are appraised (Monroe and Slavich, 2007).

Stress arises when "...we perceive our available resources to be insufficient to meet the demands of our circumstances" (Lazarus [no date], cited in Briers, 2012, 169). Stress accumulates (Weiten 2014) and if allowed to escalate produces symptoms of anxiety which could eventually trigger cognitive immobilisation. However, stress is also seen as the bodily reaction to a perception, not reality, even though the sufferer perceives themselves as out of control, or losing control, and their goals are compromised (Jensen, 2008; Ward, 2010). Therefore, in trying to understand the impact of fluctuating emotions on cognitive immobilisation, it may be advantageous to explore methods of assessing/monitoring these fluctuations, as this current enquiry has attempted to undertake.

2.6.4 Self-esteem

Findings from research carried out by Riddick et al. (1999), endorsing previous findings of Gerber et al. (1990), suggested that university students who were

dyslexic displayed significantly lower levels of self-esteem than their non-dyslexic peers. These dyslexic students also self-reported as carrying with them into university feelings of anxiety and lack of competence in their written work, acquired whilst at school. However, Gerber et al.'s enquiry only involved 16 dyslexic HE students and 16 matched controls. The Culture-free Self-esteem Inventory was used to measure self-esteem and the completed self-reporting form could be used to identify students in need of psychological assistance due to self-esteem problems. The State-Trait Anxiety Inventory was used to measure anxiety and notably found no significant difference in levels of anxiety between the dyslexic student group and the control group. It should be noted that these two assessments were used once during Riddick et al.'s inquiry to provide 'snapshot' measurements and there was no attempt to monitor ongoing fluctuations in self-esteem or anxiety respectively.

Although the types of questions included in Riddick et al.'s assessment tools were similar to those of the tests used in the present inquiry, all four assessments used in the present inquiry were currently used by practitioners in the field. Also, as previously mentioned, the Beck Anxiety Inventory and the Beck Hopelessness Scale assessments shared authorship, allowing for confidence in comparing these two sets of scores, in addition to giving a more comprehensive picture of the participants' emotional status.

There has been a paucity of information from research concerned with dyslexic HE students' state anxiety (an emotional reaction to a specific self-threatening situation described by Wolfe et al., 1987) becoming trait anxiety (a relatively stable personal characteristic), giving rise to 'stable debilitating traits' (Carroll and Iles, 2006, 653, on replicating the study of Riddick et al., 1999). The value

of data obtained from one 'snapshot' in the academic life of dyslexic HE students cannot but be limited, although the findings suggest further research in this direction. It should be noted, however, that the current enquiry recorded the fluctuations in self-esteem levels and anxiety levels of individual dyslexic HE students over a period of 2 academic terms, mapping these and other emotional measurements against frequencies of incidence of cognitive immobilisation, thereby presenting a much more holistic picture of individual student's particular experiences.

Alloway et al. (2009, 99) screened over 3000 students (of all ages) with working memory problems and found their levels of self-esteem to be of concern.

Findings revealed students with low working memory had average scores for the sense of self (how comfortable the individual is with their strengths and weaknesses) and sense of belonging (individual's ability in social relationships); whereas they had very low scores for personal power (including self-confidence and assertiveness). However, Burden (2005, 9) drew attention to individuals' varying self-conception within different contexts, suggesting dyslexic HE students may cope differently within academic and non-academic settings, which may present further opportunity to explore alternative coping strategies.

Often individuals are initially motivated by external factors (such as the interest shown by their peers or tutors) when deciding whether to commit to completion of a task. Such individuals then make formative choices of action according to their perceived options (Williams and Burden, 1997, cited in Burden 2008).

Unfortunately, some dyslexic HE students regret their decision to progress to higher education when they experience difficulties in satisfying the demands of their chosen academic courses.

Some researchers agree with the strength of evidence to support dyslexia's direct causal link to low self-esteem, with official bodies such as the Specific Learning Difficulties Working Group's 2005/DfES Guidelines endorsing this link, as do the research findings of Hellendoorn and Ruijsenaars (2000) and Corkett et al. (2008). However, Burden (2000) cautions against reliance on misleading statistical relationships and urges an increase in the use of more theory-based approaches to clarify the effects of dyslexia on these links. Burden's recommended approaches included Bandura's (1997) theory of self-efficacy (previously explained); and Abramson et al.'s (1978) notion of learned helplessness, which occurs when helplessness becomes a relatively stable personal characteristic for an individual, and Weiner's (1974) attribution theory, which refers to the concept of locus of control.

2.6.5 Learned helplessness

In the event of any perceived threat, the brain loses its ability to perceive patterns or correctly interpret incoming stimuli and may overreact. Its ability to process, store and access information, especially from the long-term memory, is reduced; its responses become limited and more automatic, reverting to familiar reliable behaviours and it becomes less able to use higher-order thinking skills (Bear et al., 2016; Sousa, 2017). The implications to dyslexic HE students may be an inability to continue to work at the required academic standard, adopting a tendency to give up too readily, especially when they have previously experienced a history of academic failures and negative attitudes towards their dyslexic label. A study to explore HE lecturers' perspectives on dyslexia and dyslexic students carried out by Cameron and Nunkoosing (2012) found that lecturers' attitudes to dyslexia informed their approach to supporting dyslexic

students. Although data were collected from lecturers, with no views of dyslexic students sought, a more active approach to support was identified as given by those lecturers professing a "...genuine interest in the challenges dyslexic students face at university" (Cameron and Nunkoosing, 2012, 341). This inquiry invited approximately 50 academic teaching staff from three departments within one faculty at one university in England. Only 13 (three female and 10 male) responded and were subsequently interviewed once (between 30 and 80 minutes) to talk about their experiences. Although the transcriptions of the recorded data were re-read and coded line-by-line "...provided the researcher with a base from which to identify emerging analytical categories and wider themes" (Cameron and Nunkoosing, 2012, 344), the small sample of participants precludes generalisation from these findings. Nevertheless, these findings appear to mirror the comments of participants of the current inquiry which are quoted in detail in Chapter 4.

Inevitably, in response to negative attitudes towards dyslexia from teaching staff during dyslexic HE students' academic careers, whether or not justifiably perceived, such students cannot always avoid experiencing emotional reactions. Over time, the body can become a storehouse of defensive postures reinforced by repeated negative experiences (Jensen, 2008:87), sometimes also dependant on whether the individual perceives the reasons as being within their control or not, according to their learning attributions. Continued reinforcement of feeling both out of control and lacking influence, resulting in repeated stressful, uncontrollable experiences such as multiple failures, can result in an individual showing symptoms of learned helplessness (Jensen 2008:114). These symptoms include giving up before starting, or sabotaging positive outcomes, cognitive impairment, motivational and emotional deficits,

depression, anxiety and belief that the outcome of an event is independent of input, and "...these notions of inability become self-fulfilling prophecies" (Burden, 2005, 9). Cumulatively, these symptoms increase the likelihood of cognitive immobilisation occurring.

Price and Skinner (2007,18) identified that "...individual sessions within HE are student-led", representing a shift in power away from students' previous comfort zone of learning, which can place considerable stress upon some students as the locus of control is situated firmly with the student, who is expected to lead and direct the Specialist Dyslexia Support Tutor. Weiner's (1974) attribution theory, reformulated by Abramson et al. (1978), described aspects of whether a person's actions were attributed to an internal locus of control. An internal locus of control may directly influence an individual's perception of their control over events, and hence their success (Carroll and Iles, 2006; Burden, 2005; Alexander-Passe, 2017). A dyslexic student with an internal locus of control may therefore possibly be able to more readily manage raised anxiety levels, and/or more easily benefit from appropriate coaching strategies to this end.

Conversely, a dyslexic student with an external locus of control will be more inclined to attribute whatever happens to be out of their control, unchangeable and global rather than relating to an isolated event. Such a student may come to believe nothing they attempt will succeed and consequently give up trying, allowing this belief to become self-fulfilling and possibly leading to depression and cognitive immobilisation. This recommends fostering an internal locus of control within students' support. These individual characteristics may inevitably become more significant to dyslexic HE students in their pursuit of academic achievement, often affecting goal setting and fostering procrastination.

2.6.6 Goal setting and procrastination

Hen and Goroshit (2012) found higher levels of academic procrastination in dyslexic college students which has been linked to self-regulation, self-efficacy and self-esteem (Klassen et al., 2008). Procrastination describes the repeated delaying by students in starting a piece of work for various reasons. It could be attributed to their poor time management skills, so they do not plan and complete their work, or their belief that their work will be of an unacceptable standard, so they put off doing it. These delaying tactics only serve to put more pressure on the dyslexic students as more work becomes due for submission, inevitably increasing their anxiety levels. The employment of such tactics can give rise to a vicious circle of avoidance, described in more detail in Chapter 3 and illustrated in Figure 3.2. Hen and Goroshit also found that self-efficacy beliefs influence task choice, effort, persistence, resilience, and achievement (Bandura, 1997; Britner and Pajares, 2006).

The findings of Klassen et al., (2008:117-8) indicated that individuals with learning difficulties (such as dyslexia) reported significantly higher levels of procrastination, coupled with lower levels of metacognitive self-regulation and self-efficacy for self-regulation than their non-dyslexic peers. Boysana and Kiralb (2017) found parental criticism was a significant correlate of procrastination in young adults, although the sample did not specify adults in higher education with dyslexia. However, for dyslexic HE students studying away from home this finding may affect their approach to their academic workload. Boysana and Kiralb also found that the personality traits studied were "...inversely associated with procrastination behaviour" (2017, 284). Olds' (2016) enquiry was concerned by the experiences of dyslexic individuals who

were first formally identified as being dyslexic when they entered higher education, or even went through their university course before their dyslexia was identified. Old's findings identified such students as experiencing feelings that they were not good enough to warrant their places at university, with their anxiety and feelings of shame effectively trapping them in a cycle of procrastination and aiming for perfection. Procrastination and avoidance have also been identified as resulting from increased anxiety and stress by Williams (2003) and Tefula (2014).

Anecdotally, as no specific data were available from the current enquiry, individual students who feel their "...goals have been compromised" (Jensen 2008, 42; Hen and Goroshit 2012) by failing to meet a submission deadline often seek extended submission dates, legitimately citing their dyslexia in mitigation. Within practice, it has been found that the further behind with submissions of work dyslexic students become, their stress and anxiety approach levels are likely to trigger cognitive immobilisation. Jensen (2008) found goal setting often increased performance, although when too much attention was paid to the goals themselves, Jensen believed they could be counterproductive. Once a goal is set, it is possible that its intrinsic value to the student may diminish when they realise the amount of effort required.

"When the pressure is too great, learners report feelings of self-consciousness and the tendency to make simple mistakes and "choke" on materials they know that they know but can't remember in the pressure of the moment" (Jensen, 2008,129).

As the resultant increase of pressure on a dyslexic HE student who realises how much work will be required to achieve an academic goal intensifies, cognitive immobilisation occurring under pressure becomes more likely when

the student is purposely thinking too much about actions he may otherwise perform automatically under less stressful conditions ('paralysis-by-analysis'). Wang and Shah (2014, 226) found that children with lower working memory ability were much more susceptible to "...choking under pressure" than their higher working memory ability peers when performing academic tasks. The language used here echoes that used by sports coaches (Kremer et al., 2012, 44) who use the term 'choking' to describe an athlete 'freezing up' when their cognitive overload exceeds their cognitive capacity, as in cognitive immobilisation.

2.7 Strategies for supporting students

2.7.1 How dyslexic HE students are currently supported and their evaluation of this support

The Equality Act 2010 includes legal guidelines for the support of dyslexic HE students. However, the provision of coping strategies needs to be supplemented by meta-awareness skills to enable the application of these guidelines (Mortimore and Crozier, 2006; Mortimer, 2008; Olofsson et al., 2012).

Dyslexic HE students attending one-to-one study skills support, usually one hour weekly with a Specialist Dyslexia Support Tutor, provide a potentially rich source of information relating to cognitive immobilisation which could be gleaned from the initial Individual Development Plans (IDPs), constructed by tutors in collaboration with each student at the start of their annual support. These individual documents use information from the students' diagnostic assessment reports which describe in detail each student's profile of strengths and weaknesses, including cognitive deficits likely to affect that student's

academic performance. The IDP is designed in consultation during an initial meeting, when the student is invited to explore their immediate support needs, as well as identifying areas where they considered they did not need extra support. During this support programme, formative reviews of the IDP are carried out, again in consultation with the student, which may also provide clues relating to students' previous recognition of personalised triggers of cognitive immobilisation, as well as successful coping strategies.

Martin et al. (2009, 765) defined a coping strategy as a plan of action that is followed,

“...either in anticipation of encountering a stressor or as a direct response to stress as it occurs, in an effort to reduce the level of stress that we experience”.

Scott (2004, 37) opines that even those dyslexic students who have developed learned helplessness

“...do have resources and coping abilities, but they have either forgotten that they are there or have learned useful reasons for ignoring them”,

which may infer criticism of the support they are receiving.

A study in Sweden by Olofsson et al. (2012) examined how dyslexia affects students' ability to benefit from higher education; the strategies that successful dyslexic students use and the support offered by the higher education institutions. Participating dyslexic students' data was generated from interviews, self-reports and tests involving 53 students and 42 lecturers from 3 Swedish Universities. The study findings revealed great variation in students' declared coping strategies but the most frequently mentioned involved reducing the amount of reading; reading summaries; looking for alternative and shorter texts

and cooperating with peers. Lecturers expressed the views that course structure and teaching procedures could be presented in more dyslexia-friendly formats. A more extensive review of such research findings would offer great value and direction to future recommendations for improvements to the support structure and the nature of intervention programmes offered to dyslexic HE students. In discussing their findings, Olofsson et al. (2012, 1192) rightly drew attention to the need for more research into the views and experiences of "...pupils with dyslexia who refrain from higher education". It is noteworthy that data collected by Olofsson et al. appear mainly to relate to academic issues, with unspecified recommendations for "...effective and transparent student services" identified for further action, alongside reforms in teaching organisation and staff training.

The Teachability Project's (Simpson, 2004) publication has been widely used as a tool to evaluate accessibility of academic resources by academic staff in the UK. However, an extensive study in British universities by Mortimore and Crozier (2006) found "...indications of unmet needs in several areas notably support for specific subjects and with organizing coursework, learning in lectures, and academic writing skills". Dyslexic students also reported on their use of the resources available to them. Griffin and Pollak (2009), in their report on the BRAIN.HE (Best Resources for Achievement and Intervention re Neurodiversity in Higher Education) project, created in 2005 at De Montfort University, recommended dyslexia awareness training for all university lecturers, together with improved liaison between staff and students, in response to students' reported views that they did not feel adequately supported by their institutions.

However, Corkett et al. (2008) analysed the self-reported personal characteristics that university students believed had helped them overcome their longstanding history of reading difficulties while studying at HE level. Corkett et al. found that although the 10 students reported difficulties continuing into HE, they were able to compensate sufficiently to achieve the required academic performance. The 4 main coping strategies cited in this research were *seeking assistance from others; developing positive relationships with others; being highly motivated to achieve; and maintaining a belief in one's abilities*. Although it should be noted that, as previously evidenced, dyslexia is not solely synonymous with a reading difficulty, the main coping strategies listed above resonate with those compensating for a dyslexic profile. Similar studies carried out by Mortimore and Crozier (2006) and subsequently by Olofsson et al. (2012) reported that students appeared to compensate for their learning difficulties by taking advantage of their access to Specialist Dyslexia Support Tutors and specialist technology, as well as using the extra time allowed in exams. These findings suggest dyslexic HE students' stress, and therefore risk of cognitive immobilisation, could be reduced to some extent by institutions' enhanced provisions of dyslexia-friendly resources and environments.

2.7.2 What can be learned from successful strategies to alleviate cognitive immobilisation outside education?

Areas outside education where phenomena of a very similar nature to cognitive immobilisation have been identified include sports, performance arts, business and life coaching. The findings of such research were reviewed in terms of identifying coping strategies proved to be efficacious, together with identification of any assessment tools used in evaluating their success. Similarities and

parallels in terms of the language, mind-body-emotion links and coping strategies were apparent between these disciplines.

A search of the literature revealed accounts of the occurrence and management of this phenomenon, variously termed '*choke*' in sports science (Hardy et al., 1996; Hemmings and Holder, 2009; Weinberg, 2010; Kremer et al., 2012); '*stage fright*' (Buswell, 2006; Bahmann, 2009), '*business performance anxiety*' (Peltier, 2010) and anecdotally, '*writer's block*'. Sports coaching was revealed to be one of the most well-researched and documented areas of study: 'Choking under pressure' is defined as occurring when

“...an athlete's normally expert level of performance deteriorates suddenly and significantly under conditions of perceived pressure” (Kremer et al., 2012, 43).

This phenomenon is sufficiently common to warrant different terms within different sporting disciplines: '*cragfast*' in climbing; '*bottling*' in soccer; '*yips*' in golf; '*dartitis*' in darts and '*icing*' or '*bricking*' in basketball.

Research since the 1990s to discover a possible relationship between arousal, anxiety and athletic performance has given rise to three main theories: the catastrophe theory (Hardy et al. 2007); the conscious processing/reinvestment hypothesis (Masters and Maxwell, 2008) and the attentional control theory (Eysenck et al. 2007). These and other theories were unpacked in order to identify possible sympathetic resonance with cognitive immobilisation in dyslexic HE students.

Perhaps the high-profile nature of the sporting outcomes of choking prompted such extensive research into the causes of this occurrence and into the evaluation of interventions aimed at addressing it. Although choking and anxiety

in sport are believed to be inexorably linked (Hardy et al., 1996; Hemmings and Holder, 2009; Weinberg, 2010; Kramer et al., 2012); the interaction of choking and anxiety is also seen by psychologists, coaches and athletes alike as something of a paradox, occurring when anxious people are trying too hard to succeed in a task. This well-known 'paralysis-by-analysis' (Kremer et al., 2012, 44) phenomenon, similar to cognitive immobilisation, has been identified in other disciplines where conscious control is exerted during increased anxiety, over previously automatically controlled movements or task completion. That is, when the working memory facility is engaged unnecessarily, when retrieval for the memory of a perfect performance could be accomplished automatically (without conscious thought), directly from the long-term memory. As with any potential coping strategy, the efficacy of applying a tactic which may potentially prove successful in helping one individual may not be so successful or may even not appeal to another individual. This notion substantiates the advantage of offering as wide a variety of coping strategies as possible for dyslexic HE students to consider and trial. Verification of this concept can be seen in the findings of the current inquiry detailed in Chapter 4.

Striking similarities in explanations for factors attributed to impaired performance in sport and academic work are revealed in the literature. Kremer et al. (2012, 48) described coping in the field of sport as

“...a dynamic ongoing process that can change from situation to situation and involves any method that a person uses in an effort to master, reduce or otherwise tolerate stress”.

Kremer et al. continued by categorising such coping strategies as being problem-focused, emotional-focused or avoidance/removing oneself from the

stressful situation, similarly identified by Alexander-Passe (2006). These strategies have been found to vary according to whether the stressors were perceived as being *controllable* or *uncontrollable* by the stressed person, echoing the locus of control concept previously described.

Hemmings and Holder (2009, 2) advocated the raising of self-awareness in athletes by way of assessment. Weinberg's observations that

“...because the mind only has a limited capacity... paying attention to relevant or appropriate cues and eliminating inappropriate ones is critical to performing at your best” (Weinberg, 2010, 97),

and

“Negative self-talk is usually critical, self-demeaning, and anxiety-producing as well as undermining confidence and reducing concentration” (Weinberg, 2010, 100),

may be applied equally to performance in other fields, including HE.

Performance anxiety, or ‘stage fright’ as it is commonly known, continues to affect many highly successful people in all areas of public life. Symptoms strike without warning and the sudden loss of control is attributed to mounting stress and anxiety which causes the sufferer to ‘freeze up’ in response to the opposing demands of the ‘fight’ or ‘flight’ dilemma. Bahmann’s (2009, 8) comprehensive account of performance anxiety,

“No magic pill has been invented that can completely free everyone from anxiety when we step into the spotlight. The human race is too diverse. We have different natures, different needs, different vulnerabilities. Our homes and family histories our nervous systems and genetic makeup – many factors influence how we handle stress”,

also reflects the description of cognitive immobilisation by dyslexic HE students who have experienced it.

In the field of performance coaching, Buswell (2006) applies more theory to interventions, which are closely linked to those prescribed in sports coaching, but both Buswell and Bahmann (2009) tend to rely on anecdotal evidence of success within their fields. While the accounts of Buswell and Bahmann lack the support of empirical data, their combined wealth of experience in their fields of stage performance contain the rich descriptions of events, similar to the phenomenon of cognitive immobilisation, described in the words of those who have experienced them. For example, Bahmann describes a young singer who, after practising relaxation techniques which allowed him to overcome his anxiety, performed well without thinking about it in much the same way as athletes describe 'flow' performances. Bahmann (2009, 20) also confides "Italian tenor, Luciano Pavarotti, described the feeling just before going on stage as 'being paralyzed' ".

Buswell (2006) recommended adherence to the model of the Performing State (Figure 2.6) as part of a neuro-linguistic based intervention programme (NLP).

$$\boxed{\text{Performance}} = \boxed{\text{Potential}} \text{ minus } \boxed{\text{Interference}}$$

Figure 2.6 Theoretical Model of the Performing State
(Gallwey, 1986, cited in Buswell, 2006, 25)

This model suggests that applying working memory unnecessarily interferes with optimal performance, and Buswell stressed that

"The critical information is knowing what it is that the good vocalist does differently in his mind – the difference in his thinking and feeling states – and with his body; whereas discovering what they do that is similar is much less useful."

Within the areas of business and life coaching, according to Peltier (2010, 241),

‘Executive coaching has its roots in athletic and performance coaching and has become a popular way for companies to assist and develop talent...’

The term ‘coaching’ is preferred to executive counselling or workplace therapy in order to avoid the popular negative connotations associated with those terms, reiterating the negative issues sometimes associated with the dyslexia ‘label’.

Buswell (2006) drew attention to the importance of feedback which can be self-generated by post-performance reflection, with the goal of imprinting the positive thoughts and feelings associated with a past peak performance on the unconscious mind. First described by Kolb (1984), Johns (2009,12) described reflection as

“...being mindful of self, either within or after experience, like a mirror in which the practitioner can view and focus self within the context of a particular experience, in order to confront, understand and move towards resolving contradiction between one’s vision and actual practice”.

Peltier (2010,195) also agreed with the importance/value of feedback, although observing it was not always well received or acted upon.

2.7.3 Mindfulness, Cognitive Behavioural Therapy and Neuro-Linguistic Programming

The literature suggests sports, performance, business and life coaching all share intervention resources, the main ones being derived from mindfulness, cognitive behavioural therapy (CBT) and neuro-linguistic programming (NLP), in conjunction with counselling skills. The essence of cognitive behavioural therapy is “...learning to challenge preconceptions about ourselves, other

people and the world at large” (Briers 2012, 15). This view is shared by Nelson-Jones (2011). Williams and Jones (1997) describe the benefits of CBT in encouraging individuals to better understand and cope with the triggers and symptoms of their mood, including the ability to engage these skills appropriately without being prompted.

The Mental Health Foundation (2010) and Williams and Penman (2011) described mindfulness as a quality of human consciousness characterized by an accepting awareness of, and enhanced attention to, the constant stream of lived experience. Being mindful increases engagement with the present moment and allows for a clearer understanding of how thoughts and emotions can impact an individual’s health and quality of life (Kabat-Zinn, 2013).

Mindfulness can be cultivated through meditation practice and Mindfulness meditation practices have been formalized in programs such as mindfulness-based stress reduction (MBSR) and mindfulness-based cognitive therapy (MBCT) (Williams and Penman, 2011; Kabat-Zinn, 2013; Niemiec, 2014).

Recent research has discovered beneficial effects of including mindfulness training within the support programmes offered to HE students experiencing cognitive processing difficulties, such as Loughborough University’s Mindfulness for Study programme, developed for students with Specific Learning Difficulties (SpLDs) (Krcmar, 2014; Krcmar and Horsman, 2014).

However, Stetka (2018) summed up several systematic reviews of research projects undertaken regarding the efficacy of mindfulness in the treatment of emotional issues, as using varying, poorly designed approaches which often omitted a control group to rule out any possible placebo effect. In addition, a lack of scientific data available for attempts at standardisation has so far rendered comparison of different studies difficult.

Neuro-Linguistic Programming (NLP) is described as the art and science of personal excellence, identifying what makes the difference between the excellent and the average and formulating effective techniques for business, education, counselling and therapy (O'Connor and Seymour, 1995; O'Connor, 2001; Carey et al., 2010; Kudliskis, 2014). NLP was originally developed as a means of understanding how people process information and perform skills to achieve goals (Tosey and Mathison, 2006; Petrovici, 2013). NLP employs many techniques aimed at rapid improvements in achievement, particularly using communication between athletes and coaches (Grosu et al., 2014).

O'Connor and Seymour (1995,111) describe 'Downtime' in NLP as

'...a trance-like state occurring when a person goes into deep thought becoming less and less aware of outside stimuli',

reflecting the description of the phenomenon, 'flow' (Csikszentmihalyi, 2008), previously mentioned in connection with the efforts of sports coaches wanting to support athletes in their efforts to improve their performance. The current research project was concerned equally with improvements in students' emotional status as with improvements in their academic performance. It may therefore be possible that the techniques discovered in sport might be successfully transferred into the support of dyslexic HE students.

2.8 Developing an approach to more effective support for the emotional aspects of dyslexia for HE students

Literature suggests that the improvement of support for dyslexic HE students could best be accomplished from two concurrent approaches: firstly, by

reducing stress and anxiety by improving resources and general awareness by providing a more dyslexia-friendly HE environment; and secondly, by acknowledging the importance of identifying and effectively managing the emotional aspects of their dyslexia. It is encouraging to note that Price and Skinner (2007,11) recognised that

“There is a move to unite two strong research fields: education and cognitive science. At last the two fields are talking to each other to find out if and how the respective research can be related to what amounts to two very different approaches”.

However, Zadina (2015) expressed concern that practitioners may lack adequate scientific comprehension to apply these theories within their teaching, without formal training from educational neuroscientists.

As Burden (2005,13) reflected,

“Reports on the outcomes of intervention programmes implemented with dyslexic children and adults have tended almost exclusively to focus upon measured gains in academic achievement without reporting the broader psychological effects on the participants in either the short or long term”.

Riddick et al. (1999, 244) agreed there was a need to identify those dyslexic students who are low in self-esteem and/or high in anxiety, in order to be in a position to make informed evaluation of changes to more effectively lower anxiety and raise self-esteem. Riddick et al. urged that such awareness be applied in dyslexic students’ overall assessment.

Anecdotal evidence within practice has identified common triggers appearing to cause adverse change in emotional status, with its associated signs of increased anxiety and possible cognitive immobilisation. Such changes in emotional status appear to manifest differently between individuals, ranging

from total withdrawal from academic studies and all support offered, to strident panic demanding assistance from every conceivable source. It is important to view anecdotal accounts from fellow practitioners as referring to individuals and as such, not to be considered as applying to all dyslexic HE students. However, such observations have identified the transitions into the first year of study; from first year to second year and from second year to final year as being particularly significant for undergraduates as the level of self-directed study increases. As well as at these more predictable milestones, students have also been observed to suffer similar setbacks just before hand-in dates; before and during exams; after receiving tutor feedback on marked assignments; before taking part in class seminars; when experiencing problems such as broken laptops and/or losing their work and as a result of personal problems including illness, family or financial troubles. It is anticipated that such rich qualitative data could be collected for analysis using semi-structured interviews in conjunction with the documentation produced by assessors and Specialist Dyslexia Support Tutors. Unfortunately, there appear to be no data available in the University to identify or quantify the outcomes of cognitive immobilisation experienced by dyslexic HE students. Such data could serve to inform and drive innovative changes to the University's dyslexia support programmes.

Moreno (2004) and Jensen (2008) both recognised the advantages to the dyslexic HE student of receiving explanatory feedback which is more likely to promote deeper learning than corrective feedback alone, and therefore more likely to avoid anxiety leading to cognitive immobilisation. Possible trigger recognition may also be revealed through recurring absences due to illness (Jensen, 2008; Barnes 2013), or by students who resort to consulting their GP or the University Counselling Service.

By using multisensory learning methods to facilitate secure learning, aiming for automaticity (Jensen, 2008), students become closer to being able to produce their best performances. Achieving automaticity in the execution of any task may be identified as a positive move to the student's being able to replicate steps to achieve this state (flow) at will (Csikszentmihalyi, 1990; 2002) when attempting to undertake the same, or perhaps a very similar task. The importance of dyslexic individuals being able to achieve automaticity in carrying out academic exercises required in their coursework was also highlighted by Nicholson and Fawcett (1999, 2001),

Currently, study skills support provided for dyslexic students is neither required, nor expected, to address issues potentially arising from any low self-esteem or low self-confidence frequently characteristic of dyslexic learners. As Turner and Nicholas (2000, 67) stated:

“Students can be motivated and their self-esteem raised by continuously encouraging their strengths and talents throughout the teaching process.”

This sentiment is not shared by Eissa (2010:17) whose project undertook to evaluate reading difficulties among dyslexic adolescents, highlighting their associated emotional and behavioural characteristics. 35 dyslexic adolescents and 21 non-dyslexics of matching ages were interviewed, during which time their responses to 3 diagnostic assessment tests were recorded for further statistical analysis. Eissa's findings endorsed the generally accepted view that dyslexia negatively influenced self-esteem, fostering feelings of being 'different' to others due to their poor academic achievement and causing decline in well-being. The dyslexic adolescents also scored significantly higher for depression and anxiety, compared to the non-dyslexic control group. It should be noted that

'poor readers' were defined as being dyslexic for the purposes of sampling and as has been explained at the beginning of this chapter, dyslexia is defined in the UK as a continuum with a varied profile which may or may not include lower than expected age-related reading ability. The participants were aged between 12 and 18 and were all attending secondary schools. Because none had progressed into higher education, any additional stress caused by the more complex academic requirements experienced by dyslexic HE students would not be taken into account. However, although Eissa (2010: 23) consequently urged greater awareness, and earlier identification and support for dyslexia, conclusions of the research project advocated intervention including,

“...remedial education for dyslexia and behavioral and medical management for associated emotional and behavioral symptoms”.

Rack (2001) agreed that dyslexia could lead to significant secondary symptoms relating to emotional and behavioural difficulties, which he cautioned could be more problematic to treat than the more readily recognised educational characteristic.

Eissa's dichotomous view of dyslexia support was not shared by Herrington and Hunter-Carsch (2001, cited in Pollak, 2005,152), who summed up the case for a revision of the discourses of dyslexia currently operating in the HE sector:

“In summary, we consider that it is not helpful to view dyslexia through a narrow lens of 'in-person' weakness. We prefer a broader framework drawing on research from many disciplines and traditions which reflects an integrated holistic view of the learners and deeper models of the mind.”

Burden (2005:28) concurred that research should be

“...contextualized within the personal and collective histories of dyslexic individuals. ...therefore we have to construct appropriate theory-based instruments which are capable of illumination these issues”.

Burden (2008) concluded that measurement of low self-esteem, as explored by Carroll and Iles (2006), would be more informative when linked to resultant expressions of negative feelings, urging the application of theoretical approaches previously mentioned. To this end, graphical representations of the measured fluctuations in anxiety and hopelessness levels, matched and compared with co-occurring measured fluctuations in self-esteem were maintained for each participant throughout the latter part of the current inquiry. These data were available for information and discussion during the regular interviews/monitoring meetings and were also used to identify and trigger referrals to the University Counselling Service as appropriate.

Hellendoorn and Ruijsenaars (2000), McLoughlin et al. (2002) and Alexander-Passe (2006) also emphasised the need for support to include provision for counselling and/or psychotherapy. As Reed (1997, 61) summed up:

“A logical first step towards a greater understanding of how depression can be identified is to investigate how self-reported primary symptoms might relate to other behaviours and symptoms”.

Scott (2004, 225) added,

“An effective counselling system for dyslexic clients combines assessment literacy training and counselling. The evidence is that the best counselling provision for dyslexic clients makes an intelligent, integrated use of all these components”.

However, Peltier's (2010,1) caution that “We cannot rely on what people tell us about their own qualities and behaviours...” cannot be ignored, especially when some dyslexic students are anxious to avoid the negative connotations of their ‘label’, preferring not to reveal their learning difficulties.

Suggested strategies to be included in dyslexic students' support packages, aimed to reduce their anxiety and thereby their cognitive load, include positive reframing and thought challenging (Jordan et al., 2014); improved structural design and clearer learning materials (Kirschner, 2002; Ayres and Paas, 2012) and multisensory teaching/learning (Kirschner, 2002). Hen and Goroshit (2012,122) believed their findings contributed to the notion that to better support dyslexic students in HE there needed to be a clear emphasis on their emotional abilities and self-related states. As Jensen (2008,115) argued,

“There can be no change in student behaviour without a corresponding change in the brain. Body-mind mind-body: there is no separation”.

Experienced observation of dyslexic HE students' behaviour can reveal “...what is not working and what is not likely to work” (Oslund, 2014). Suggestions for improvement taken from this literature can be seen to include expansions of current study skills strategies, augmented with awareness of and support for emotional issues, which have clearly been identified as pertinent to the academic wellbeing and ultimate achievement of dyslexic HE students. The aim of such developments in the support of dyslexic HE students should be to enable them to realise their individual academic potential (McEwan and McEwan, 2003). This should be the aim of all educators viewing these issues faced by dyslexic HE students through the lens of inclusion and underlines the rationale for the current inquiry.

2.9 Conclusion

There appears to be a paucity of research findings relating to issues affecting dyslexic HE students, particularly concerning the phenomenon of cognitive immobilisation. In spite of the wealth of individual written and anecdotal

evidence collected by Specialist Dyslexia Support Tutors throughout dyslexia support programmes, no official data have been found relating to dyslexic HE students' recognition of triggers of cognitive immobilisation. Neither does there appear to be statistical data, formative nor summative, held by the University, relating specifically to the effects of cognitive immobilisation on dyslexic students in HE, in terms of failure to complete their courses or failure to achieve their full potential. However, the very fact of their individual academic/emotional profiles would preclude any value in global interpretation in place of the close examination of each individual's academic/emotional journey throughout their time at university.

Assessment of dyslexic HE students with due attention to aspects of emotional status as well as cognitive skills, would seem more likely to target individual students' holistic needs in completing their HE workload. Based on the literature, there would appear to be a need to expand dyslexic HE students' metacognition which is currently confined to identifying and applying preferred learning styles: visual, auditory, kinaesthetic or a combination thereof (Sousa, 2017). Initially this should help students to develop ongoing awareness of their emotional status and its concurrent significance in terms of avoiding cognitive immobilisation.

As a result of findings from this review of the literature, the principal focus and aims of this research were confirmed as

- to discover the extent of the occurrence and possible triggers of cognitive immobilisation in HE students who are dyslexic in one UK university;

- to explore the relationship between this occurrence, individual variations in processing capacity relating to working memory/long term memory interactions and ipsative measurements of fluctuating emotional states;
- to investigate the efficacy of possible coping strategies, including those which have been employed successfully to manage similar phenomena in disciplines outside education;
- to use the findings of this inquiry for the improvement of specialist support for dyslexic HE students.

These areas of inquiry were further defined in formulating the following research questions:

Research Question 1

What is the perceived incidence and what are the possible triggers of cognitive immobilisation amongst dyslexic HE students (in the views of the students and their Specialist Dyslexia Support Tutors)?

Research Question 2

What relationships appear to exist between the incidence of cognitive immobilisation and

(a) memory and learning?

(b) emotional status in terms of

- self-esteem/self-image?
- anxiety?
- hopelessness (feelings about the future, loss of motivation and expectations; learned helplessness)?

Research Question 3

What strategies, if any, for coping with cognitive immobilisation are used by dyslexic HE students and how efficient do they perceive them to be in managing incidences of cognitive immobilisation?

(a) self-devised;

(b) proposed by support staff for Dyslexia;

(c) other coping strategies employed in disciplines outside education in the management of a very similar phenomenon, introduced to the participants during the project.

Research Question 4

How may these findings be best used to inform effective coping strategies to overcome cognitive immobilisation in dyslexic HE students?

In this chapter, dyslexia was introduced and defined in terms of the characteristics shown by dyslexic individuals and the theories constructed to explain them. Methods of assessment were matched with the range of difficulties presented in the dyslexic profile. Outlines of models and explanations of dyslexia were expanded with greater detail relating to the cognitive processing systems, followed by an account of factors affecting these systems, leading to cognitive immobilisation in dyslexic HE students. The significant socio-emotional impact of dyslexia on HE students was then explored in terms of the possible adverse effects of being 'labelled' as being dyslexia. The impact of emotional and personal effects of dyslexia, including issues of stress, self-

esteem and learned helplessness on dyslexic students participating in Higher Education were investigated. The nature and content of current support for dyslexic HE students was studied with reference to student evaluation of this support. Having discovered successful strategies to alleviate phenomena similar to cognitive immobilisation in disciplines outside education, consideration was given to developing an approach to more effective support for the emotional aspects of dyslexia for HE students by including trans-discipline ideas. In the following Chapter 3 the research methodology will be introduced.

CHAPTER 3 DEVELOPING AND APPLYING A METHODOLOGY

“Knowledge is a process, not a product”

(Curzon1997,115)

3.1 Introduction

Taking ideas expressed in the literature examined in the previous chapter, especially findings of research connected with adverse effects of low self-esteem and self-image and/or heightened levels of anxiety on the academic achievements of dyslexic HE students, a methodology to address the proposed research questions was developed. The focus of the enquiry arose from my praxis which was concerned with the support of dyslexic students, particularly those in Higher Education. Influenced by my review of related literature the directions of my investigation were crystallised into:

Cognitive immobilisation in dyslexic HE students: Exploring possible triggers, links with aspects of memory and fluctuating emotional status; informing effective coping strategies.

The term ‘cognitive immobilisation’ is used within this work to describe the phenomenon of ‘freezing up’ experienced by individuals whose mounting stress and anxiety levels have eventually caused their increasing cognitive overload to reach critical level (Scott 2004), effectively blocking their cognitive function and temporarily disabling their ability to achieve their academic aims.

The issues under consideration were initially viewed through the lens of inclusion within education. However, a search of the literature in disciplines outside education, described in more detail in the previous chapter, revealed accounts of the occurrence and management of very similar phenomena.

These revelations effectively led me to reassess my hitherto narrow assumptions of the occurrence of this phenomenon, cognitive immobilisation.

A research project need not be a 'stand-alone' piece of work that begins from scratch but should build on ideas that have already been devised by others. However, researchers, including myself, should be aware of a possible risk that the literature may influence how they come to view their topic, thereby inadvertently restricting the direction of their inquiries (Punch 2005, 42). I have nevertheless taken the decision to broaden my research into the current knowledge of occurrence of the cognitive immobilisation phenomenon within areas outside education, in pursuit of hitherto unrelated knowledge.

3.2 Identifying my theoretical position

In order to identify what I was seeking, I needed to define knowledge. The term ontology may be employed which refers to the study of "*being*", embodying the understanding of "*what is*"; whereas epistemology attempts to understand "*what it is to know*" (Gray, 2004:16). "Ontological conducts may be dichotomised into either a permanent, unchanging reality of *being* or a changing evolution of *becoming*" (Gray 2004:17). My aim was to instigate change to enable dyslexic HE students to *become* better equipped to address and overcome cognitive immobilisation by using the knowledge from the findings of this research project to enhance their awareness of the phenomenon. My understanding of this notion is that it describes an individual's ability to develop (perhaps modifying their version of truth), when they are able to become open to other, alternative versions of what is true in their view of the world. Creswell (2014) approved of Guba's (1990,17) use of the term '*worldview*' as meaning "...a basic set of beliefs that guide action". Others have called them *paradigms* (Lincoln et al., 2005; Mertens, 2010); *epistemologies* and *ontologies* (Crotty, 1998; Gray 2004), or *broadly conceived research methodologies* (Neuman, 2010).

I appreciate Creswell's (2014, 6) concept of worldview as "...a general philosophical orientation about the world and the nature of research" brought to a study by a researcher; an interpretation also shared by Gray (2004). This notion implies categorisation of epistemological options and suggests a mutual relationship between my theoretical stance as a researcher, my epistemological view and my choice of methodology and methods in conducting my inquiry (Crotty, 1998). Different epistemologies will inevitably give rise to different concepts of reality, or what is believed to be true. Salerno (2004,1) explains that "Ideas are not only products of the people who formulate them, they are also consequences of history, class, and culture...", adding that "...true knowledge comes from experiencing the world' (Salerno, 2004, 5). This explains how individuals' personal perceptions of knowledge give rise to realities which may, or may not, be shared (Mertens, 2010; Gray, 2004), and may also account for knowledge of phenomena similar to cognitive immobilisation discovered within disciplines outside education, such as sport and performing arts.

In attempting to answer the research questions exploring the phenomenon, cognitive immobilisation, as experienced by dyslexic HE students and outlined in the previous chapter, a qualitative methodology of a phenomenological nature would seem to be appropriate to allow reflection of students' individual viewpoints within an interpretive paradigm. This is reflected in Creswell's (2014, 14) description of phenomenological research which stated that the researcher

"...describes the lived experiences of individuals about a phenomenon as described by participants. This description culminates in the essence of experiences for several individuals who have all experienced the phenomenon".

This intention to report individual explanations, which may or may not resonate with those of others, rather than establishing a more rigidly classified thematic

approach to descriptions of experiences is shared by Cohen et al. (2007, 170) who described phenomenology as

“...seeing things as they really are and establishing the meanings of things through illumination and explanation rather than through taxonomic approaches or abstractions, and developing theories through the dialogic relationships of researcher to researched”.

However, quantitative data relating to the incidence of cognitive immobilisation, possible causes and identifiable outcomes of dyslexic HE students' failure to achieve their best academic performance due to cognitive immobilisation was also sought, to provide more concrete evidence of the existence of the phenomenon. In collecting quantitative data from the beginning of the project, evidence of the experience of cognitive immobilisation, particularly by the dyslexic HE students engaged in the project, may confirm or disconfirm their experiencing it more frequently than their non-dyslexic peers. Also, by administering a detailed psychometric assessment of the profile of memory skills of the participants, the resulting standardised profiles provided further strong evidences for creditable links and/or comparisons. This further evidence was gained through the facility of triangulation with qualitative findings, which McEwan and McEwan (2003, 80) agreed “...lessens the likelihood that a researcher will jump to conclusions based on insubstantial evidence”. The current project employed a convergent parallel mixed methods design, since quantitative and qualitative data were collected and analysed separately throughout the project, before the data were combined to enable an overall interpretation of the whole of the findings (Creswell, 2014).

In wishing to authenticate the existence and analyse the causes of cognitive immobilisation in dyslexic HE students, I adopted an objectivist/realist epistemology within a positivist perspective. This type of research usually starts

with the deductive testing of a theory by examining the relationship among measurable variables, so the empirical data generated may be analysed using statistical procedures (Wellington 2000). My methodology involved collecting quantitative data to identify traits likely to lead to cognitive immobilisation by employing a survey, individual assessment sampling, statistical analysis and possibly during interviews. By designing and applying research instruments aimed at quantifying data relating to phenomena, such as a closed-question survey, quantitative data not available naturally were gathered for statistical analysis (Muijs, 2004, 2).

Conversely, in gathering detailed personal accounts from individual dyslexic HE students, a subjectivist/constructivist epistemology within an interpretivist/phenomenological perspective dominated stages of the project. In this process, data was collected by way of developing questions and procedures, focusing on individual meaning and encompassing the whole complexity of a situation. Grbich (2013, 93) accurately observed “The focus is first-person experiences...” as the essence of such a perspective. Data was analysed inductively, ranging from particulars to general themes, as meaning is interpreted from the thick, descriptive data. These data aimed to investigate and apprehend meanings ascribed to the occurrence of cognitive immobilisation by dyslexic HE students. In employing this methodology, I needed to protect against introducing bias (Wellington 2000), controlling for alternative explanations during data analysis, recognising the possibility to generalise and replicate the findings (Creswell, 2014; Cohen et al., 2007; Gray, 2004), in order to arrive at a “...definitive answer to the causal question” (McEwan and McEwan, 2003, 78). I was mindful throughout the project of the dangers of

allowing my professional experiences to influence the processes of collecting and analysing data (Door, 2014).

As a researcher, my epistemological assumptions or paradigms have affected my choice of methodology at every stage of the research process, based on my understanding of the nature of reality. These epistemological assumptions have provided me with a "...unifying framework of knowledge, truth, values and the nature of being" (Somekh and Lewin, 2005, 347), rationalising how my research was undertaken and how research information has been transformed into data (Morrison, 2007). Throughout the research process I have reflected on the ongoing dilemma requiring me, as the researcher, to be able to identify, articulate, and make reasoned comparisons, balancing what might be gained and lost with each research option I decided to apply (Markham and Baym 2009, xix).

3.3 Framing the research project

Within the research framework, the methods I have chosen as most suitable for this project are those which elicit the data and evidence required to effectively address the research questions within a small-scale enquiry. As Thomas (2009, 7) observed,

"...it may be appropriate to ask more than one kind of question, with several lines of enquiry, each intertwining with the others"

within this current research project. Different phases of the research process needed qualitative and/or quantitative approaches to ensure a comprehensive variety of data were generated (Flick 2009). In comparing positivism and interpretivism, Morrison (2007, 16) observed that "...epistemological and

methodological issues are frequently reduced to matters of 'quantity' and 'quality' ". Notwithstanding Hammersley's (1995,17) succinct statement that "... absolute certainty is not available about anything..." it cannot be suggested any view is likely to be as true as any other, or truer within certain frameworks than within others. This idea is corroborated by Van Manen's (1997, xiii) declaration that "No one can quite feel what I feel. No one can quite see what and how I see, no matter how hard he or she may try". This statement reiterates the uniqueness of reality and truth constructed by each and every individual, even though the same language may be used to describe experiences. In a study of phenomena (as they are individually experienced), such as cognitive immobilisation in dyslexic HE students, the main focus of inquiry is on individual perception, revealing elements of existential knowing, with the possibility of new meanings (Gray, 2004).

Quantitative data which may support generalisations are sought by positive researchers, but the "...view of modern science is that variables cannot always be identified and managed to allow objective, value-free cause-effect findings" (Wellington 200,16). Conversely, as an interpretive researcher, I acknowledge that reality is individually constructed enabling me to access shared meanings, developing contextual insights which may also reflect the interaction of the observer on the observed. Using this theoretical perspective generated qualitative, richly descriptive data.

The framework for a research approach "...involves the intersection of philosophy, research designs, and specific methods" (Creswell 2014, 5). The research approach, or methodology, has been interpreted as the activity of

‘...choosing, reflecting upon, evaluating and justifying the methods you use...No one can assess or judge the value of a piece of research without knowing its methodology’ (Wellington 2000, 22).

This project required a methodology to provide useful contextual data and deep insights within the constraints of a small-scale enquiry over a relatively short time-frame. The evaluative aspect of the study was revealed through the methods employed to gather qualitative data to enrich the value of my analysis of quantitative data. My chosen methodology theorised the way I intended to gain knowledge in research contexts and provided a rationale to explain why I was able to do so (Morrison 2007, 15).

The overarching framework for this research was predominantly of an exploratory/causal nature and my inquiry was “...contextualized within the personal and collective histories of dyslexic individuals” (Burden, 2005, 28). In order to illuminate the issues I wished to explore, I needed to identify or construct appropriate theory-based instruments. I also related to Cocks et al.’s (2013) view that to understand complex systems such as those related to human cognition, the essential need for simplification (and possibly oversimplification) can result in loss of the ‘big picture’ when the main focus tends towards fine detail. The lack of literature addressing the difficulties in defining and measuring the difference between global cognitive load and global cognitive overload evidences these issues (Cocks et al., 2013).

Savin-Baden and Major (2010) described the struggle some researchers encounter in the face of inquiry into a number of environmental and cultural variables. However, throughout the research process I remained mindful of Bogdan and Biklen’s (1998,7) summary of the essence of qualitative research:

“You are not putting together a puzzle whose picture you already know. You are constructing a picture that takes shape as you collect and examine the parts”.

This alludes to the rewards to a researcher of keeping an open mind while recording as much detailed information as possible, including seemingly insignificant, unimportant scraps, in seeking the “...essence of a phenomenon” (Lichtman, 2006, 72).

I planned to present as complete a picture as possible, of as many individual accounts of an experience as feasible, to produce unexpected, rich descriptions (McEwan and McEwan 2003; Ritchie et al., 2014), which embraced an understanding of the “...shared behaviours, beliefs and values” (Ritchie et al., 2014, 27) of dyslexic HE students. Cohen et al. (2007, 19) also advocated a “...systematic and painstaking analysis of social episodes, i.e. behaviour in context”, within an interpretive paradigm, reflecting the viewpoint of the actor, as recommended by Habermas (1972). I concur with Cohen et al.’s (2007, 76) suggestion that a “...researcher should reveal fully her identity and background”, which, having done so, I found served to facilitate the establishment of good working rapports with the dyslexic HE students taking part in the latter phase of the project.

My conception of educational research as “...systematic enquiry made public” (Wellington, 2000, 13), also agreed by Stenhouse (1975), is expanded by Bassey (1990, 35) as “...systematic, critical and self-critical inquiry which aims to contribute to the advancement of knowledge”. It is proposed that research may be undertaken in order to discover new knowledge or expand an existing field of knowledge (McEwan & McEwan, 2003). This research aimed to address a shared concern in order to inform remedial decision making (Sekaran, 1992;

McEwan & McEwan, 2003; Gray, 2004). Further, in challenging accepted norms by revealing veiled assumptions, I believe I have exposed possibilities for fundamental transformations in ideologies and practices relating to dyslexic HE students, using knowledge discovered within other disciplines (Brinkman, 2013).

My self-reflexivity in analysing the considerable amount of data collected during this project allowed for the emergence of a web of interconnected findings, rather than stand-alone outcomes, including hitherto undetected correlations revealed by examining concurrent ipsative trends. Initial answers to the research questions posed were sought, followed by continual questioning where “...nothing is exempt from scrutiny” (Petre and Rugg 2010). Driscoll’s (2000) revised What? So what? Now what? model of structured reflection was then applied, using associated *ad hoc* trigger questions to delve deeper into each possible discovery. However, as Johns (2009, 50) suggested, reflection should not be seen as a “...mechanical flow through discrete stages”. Each finding was then framed before being left for a short time to allow for further clarity, as described by the 6th Century BC philosopher, Lao Tzu , thus: “Muddy water, let stand, becomes clear”. On re-examination, each framed idea was then turned upside down and viewed again through various lenses which often identifying significant themes which had not seemed so important originally (Petre and Rugg, 2010), thus also facilitating triangulation of data (Gray, 2004; Cohen et al., 2007; Saldaña, 2009; Brinkmann, 2013; Creswell, 2014). Lenses through which findings identified during this inquiry were further evaluated included inclusive education/social inclusion (student-centred and legal requirement prescribed by the Inclusion Act 2010); construction of individual intervention plans; skills/training requirements of specialist support tutors/practitioners; provision and funding of support by the institution, and organisation (related

management and leadership within the institution in regard to inclusive provision).

Since there appears to be no literature relating to any previous study comparable to this enquiry, throughout the project I remained open to the possible need to modify my methodology design in response to events during its course. Freyerabend (2010,1) justified this flexibility thus:

“We find, then, that there is not a single rule, however plausible, and however firmly grounded in epistemology, that is not violated at some time or other. It becomes evident that such violations are not accidental events, they are not results of insufficient knowledge or of inattention which might have been avoided. On the contrary, we see that they are necessary for progress.”

Nonetheless, I remained mindful that any such response resulting in a modification of data collection did not compromise the validity of the study, while maintaining the highest ethical stance in respect of the participants. Figure 3.1 below represents my initial plan for data collection, linked with its analytical direction.

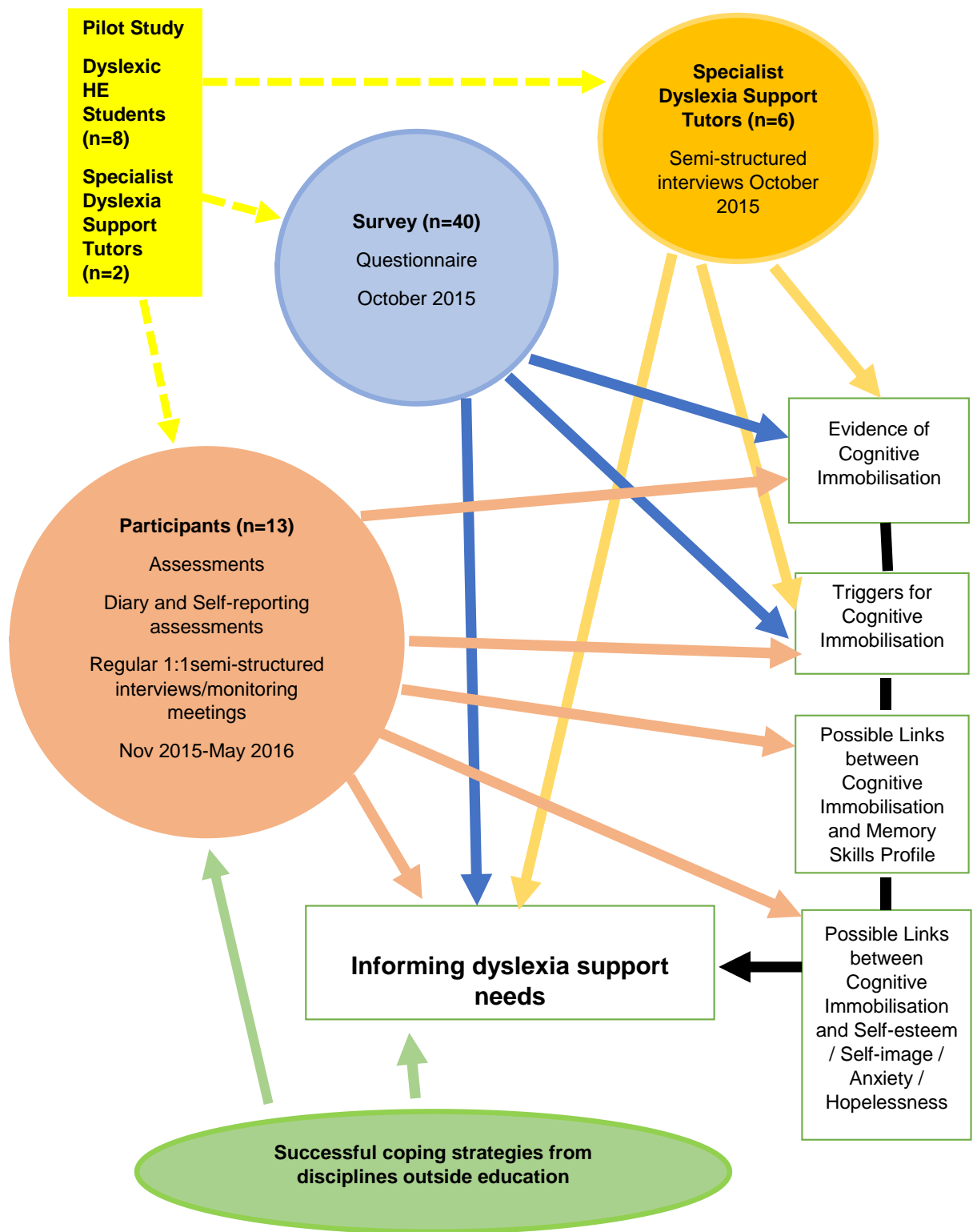


Figure 3.1 Plan for Data Collection

3.4 Pilot study

Having formulated this provisional plan and explored methods of obtaining information likely to provide data to answer the questions posed by this enquiry, a pilot study was carried out at the University. This was conducted over a three-week period in September 2015 to trial and record feedback relating to the reliability, validity and practicability of the chosen research instruments. For the purposes of this pilot study, six dyslexic HE students whom I was currently supporting (students were based in a number of different UK universities) and two dyslexic adults who had previously completed HE courses in the UK offered to trial the chosen instruments. It was imperative that those assisting with the pilot study were also dyslexic and to avoid introducing another variable, they were all, or had previously been, HE students. All eight of these dyslexic piloting volunteers reported experiencing cognitive immobilisation at some time during their academic studies and were very enthusiastic to know more about the research project. All agreed that they could relate to the spirit of the research questions. The piloting volunteers' reactions and feedback suggested that the research questions presented an avenue of research that these dyslexic individuals were keen to see pursued.

The survey questionnaire was sent by email to the eight dyslexic adults, requesting their feedback on the length of the questionnaire, ease of understanding and ability to answer the questions. Completed questionnaires were emailed back to my private account, printed off and anonymised straight away. Paper copies were offered on the individual's choice of paper colour as an alternative to the online version, but none were requested.

The questionnaire was well received by all eight dyslexic piloting volunteers who confirmed that they had understood the questions and considered that they could answer them easily, verifying suitable "...readability levels for the target audience" (Cohen et al. 2007,341). The use of a dyslexia-friendly font (Arial, 14 point), a simplified layout which was left-aligned and logical sequencing of question topics were also appreciated. However, referring to Question 7, six piloting volunteers pointed out that their award of support was given as a total number of hours per academic year and not hours per week which tended to fluctuate during the year in response to their varying workloads. Question 7 was reworded accordingly. On checking the piloting volunteers' answers, it was discovered that two of the eight had misread Question 9, "Do you prefer other students and lecturers not to know that you are dyslexic?" and replied "no" when they had meant to say "yes". Consequently, Question 9 was rewritten to "...eliminate ambiguities" (Cohen et al., 2007, 341). This issue illustrates a possible disadvantage of gathering information from questionnaires completed in the absence of the researcher. A copy of the amended survey questionnaire may be found in Appendix B.

Again, to avoid introducing unnecessary variables to the research design, only the six piloting volunteers who were current HE students were asked to evaluate the questions intended to provide the basis for the semi-structured 1:1 interviews in the latter phase of the project. The reason for this decision was that those taking part in the main phase of the project were dyslexic HE students who were still attending the University. These six piloting volunteers were also asked to appraise their understanding of the interview guide questions for the regular interviews/monitoring meetings and the researcher's verbal explanations of the new coping strategies to be introduced to the

participants during the latter phase of the project. All six confirmed that they clearly understood the interview questions and the descriptions of the new strategies.

Since the four diagnostic assessment tests used in this project were currently accepted as reliable and valid by practitioners in the field, and as such are considered well supported, the assessments themselves were not included in the pilot study. However, since three of the four assessments were intended for self-reporting by participants, the actual forms that they were required to complete were included in the pilot study. As a result of the comments from the six piloting dyslexic HE students, the self-reporting form for the Beck Anxiety Inventory (BAI) was modified to simplify completion by removing the shading from the original form, without altering the data gathered. The self-reporting form for the Beck Hopelessness Scale (BHS) was enlarged to improve legibility for the participants. It was also decided that the second page of the Self Image Profile for Adults (SIP-AD) which was for scoring was not to be issued during the self-reporting data gathering phase. This was to avoid misunderstandings, as participants were not required to complete this part of the form. Copies of the self-reporting forms used within this project may be found in Appendices D, E and F.

Four of the six piloting volunteers requested further explanation for the use of the Test of Memory and Learning (TOMAL-2) within this project. The volunteers were all familiar with the five brief subtests of the Attention/Concentration Index which are undertaken as part of the formal diagnostic assessment for dyslexia, but they were interested to learn of the range of aspects of memory and learning scored in the other eight Indexes. These Composite Indexes are Verbal Memory, Nonverbal Memory, Composite Memory, Delayed Recall,

Sequential Memory, Free Recall, Associative Recall and Learning. The nine Composite Indexes and the 16 subtests which are combined variously to produce each of the Indexes are described in more detail later in this chapter. Due to time restrictions and logistical convenience, one dyslexic adult agreed to undertake the whole of the TOMAL-2 assessment, which met my requirement to familiarise myself further by practising the administration of the subtests which I had used less frequently before the project began.

Two colleagues, who are engaged by the University through a support agency as Specialist Dyslexia Support Tutors, agreed to trial the planned 1:1 semi-structured interviews relating to their experience of the incidence of cognitive immobilisation in dyslexic HE students they had supported. The questions used to form the basis for these interviews began by establishing the Tutor's qualifications and experience and moved on to explore their descriptions and evaluation of the efficacy of coping strategies they have recommended to dyslexic HE students they have supported. Both tutors acknowledged the importance of beginning with safe questions (Hollway and Jefferson, 2013). The tutors readily confirmed the semi-structured nature of the interview schedule provided a flowing lead in obtaining data consistent with addressing the research questions, therefore no amendments were deemed necessary. A copy of this interview guide may be found in Appendix C.

As a result of feedback received during the pilot study, resulting in the minor amendments described above, my overall opinion was that the research methods and assessment instruments proposed were fit for purpose and were likely to yield data which would address the research questions. The value put on reciprocity of information made possible throughout the proposed enquiry, identified by the dyslexic piloting volunteers, cannot but serve to minimise any

inequalities of power between the researcher and the participants (Hollway and Jefferson, 2013). On considering the risk that "...asking about anxiety, we produced the anxiety we are seeking to establish empirically..." (Hollway and Jefferson, 2013, 35), dyslexic piloting volunteers all conveyed the opinion that their anxiety is always present, but they appreciated that this research project recognised that and aimed to address the issue. I was surprised (and gratified) by the tangible interest and depth of the enquiries and feedback of the piloting volunteers, whose constructive comments as current/former dyslexic HE students themselves, have been broached under the relevant sections of this report.

During the pilot study it would not have been possible to re-interview piloting volunteers, had my "...post-interview reflection given rise to uncertainty" (Doody and Noonan (2013, 32)), due to time constraints, but for the latter phase of the project participants attended regular 1:1 meetings over two academic terms. From conducting this pilot study, I learned the need for continuous reflection as the project progressed, being aware of any possible need to modify the direction of the enquiry, in response to emerging hitherto unforeseen premises. A primary concern throughout this project was to avoid causing stress or anxiety to dyslexic HE students as a result of the requirements of their participation in this inquiry. However, particular attention was essential when checking that the participants had understood the questions asked in the self-reporting assessment materials and that their replies had accurately reflected what they had meant to record, in order to preserve the validity of the data collected. It is important to note that the nature of dyslexia is likely to cause possibilities for inconsistent misreading/mistaken reporting of their emotional status from one

week to the next. This checking needed to be achieved within a sensitive setting, avoiding risks of participants feeling they should change their reports due to perceived influence from the researcher, thus avoiding any introduction of bias. The accuracy of ongoing monitoring of each individual participant's emotional status provided up-to-date evidence of the need for timely referral to the University Counselling Service or the Health Centre, as reported in the findings in Chapter 4. Another significant advantage gained from continuous reflection throughout the research process was the identification of possible suggested patterns relating to issues not previously considered.

An important and timely lesson was learned concerning the early negotiation of access to the target population, within the constraints of maintaining confidentiality. This issue resulted in a revision of the method of sending out the initial survey and further editing of the introduction document to clarify the target population.

3.5 Ethical considerations

Ethical Approval for this research project was gained from the University on 01 June 2015, in line with the British Education Research Association (BERA, 2011) guidelines and the code of practice followed by the University, taking into consideration respect for persons, beneficence, non-maleficence and justice in all interactions with participants and data collected. Willig (2008) set down basic ethical considerations as informed consent; no deception; right to withdraw; debriefing and confidentiality, in terms of personal positionality/relationship - commitment to participants; strategies for inclusion-exclusion; participation – non-participation (informed consent) and the intended use of the research, dissemination and publication of findings. Participants were informed of the

reason for the research project; their expected involvement; what data would be collected; how it would be stored and who would have access to this data.

Participants were assured of their anonymity and made aware that they were free to withdraw from the project at any time (in which case their data would be destroyed immediately) or that they may request any of their data to be withheld from publication due to its personal nature. A copy of the consent form which was signed by each participant can be seen in Appendix A.

I was mindful of the time commitment necessary for participants to contribute fully to the research process, since I wished to avoid unnecessary emotional stress, thereby risking triggering cognitive immobilisation. In view of the fact that the latter phase of the project ran between November 2015 and May 2016, I decided to offer all participants who completed the research requirements the offer of free entry to a prize draw for £150 Amazon gift voucher (which I purchased) as a token of my appreciation of their help and as a gesture of providing a "...fair distribution of both the benefits and burdens of research" (King and Horrocks, 2010, 106). This was approved by the University Ethics Committee within my original application for ethical approval for the project. All 13 participants who completed this phase of the project said they had been happy to have taken part in the enquiry and felt they had benefitted from the experience. All participants were invited (three were able to attend) to the prize draw which took place on 15 June 2016 during a scheduled meeting of the School of Education at the University.

3.5.1 Safeguarding issues

The participants had all been previously diagnosed with dyslexia and were therefore classed as being 'vulnerable', as were those who assisted with the

pilot study, so my valid Disclosure and Barring Service (DBS) check was mandatory. Since my research largely concentrated on the effects of the participants' fluctuating emotional status, I was particularly sensitive during my interactions with them, while being open and honest with them in respect of my findings (Coolican, 2014). I believe I have the experience to establish a sufficiently empathic, professional rapport with student participants within the context of this proposed research (Roulston, 2010). However, having qualifications and experience within the field of counselling, I acknowledged that my responsibilities within this project do not include any counselling role. I therefore remained aware of the critical boundaries in this area throughout the project (Conor and Pokora, 2017, 81-82) and in several instances referred participants to the University Counselling Service, as appropriate. This concern applied equally to those assisting the pilot study as to participants in the main research project.

3.5.2 Inclusion

Because the survey respondents were all identified as dyslexic, I designed the initial survey instrument to be user-friendly with the intention of encouraging a viable response rate to afford me data from a creditable sample size. I therefore used the minimum number of easily answered, closed questions with only two open-ended, optional questions. The survey questionnaire is described in more detail later in this chapter and a copy is included as Appendix B. All tools I used for data collection were appropriately piloted (as discussed above) and adjusted/amended as subsequently deemed appropriate (Cohen et al., 2007).

During my interaction with the dyslexic HE students throughout the research process I aimed to be aware of any emotional issues relating to their dyslexia. Pollak (2005) and Alexander-Passe (2017) rightly drew attention to the possible incidence of dyslexic HE students' self-concept being negatively affected when experiencing formal assessment related to dyslexia. This resonates with my experience in professional practice, as with the observations of Price and Skinner (2007), that the cumulative effect of the components of unique individual dyslexic profiles will impact on the dyslexic student's ability to manage the learning environment effectively. Such negative impact on dyslexic HE students' academic achievement occurs particularly when disabling barriers are created for these students, when the social model of dyslexia is applied (Macdonald, 2009). The social model of dyslexia, outlined in the previous chapter, blames society and the dyslexic individual's environment, rather than the dyslexia itself as actually disabling the dyslexic individual (Goodley and Lawthom, 2006; Alexander-Passe, 2015; Hodkinson, 2016)

3.5.3 Researcher positionality

I did not provide the formal/official study skills support for any of the participants during the academic year I conducted the research. However, during the course of the interview/monitoring stage of the project some coping strategies which may normally have been included in 1:1 study skills sessions provided by Specialist Dyslexia Support Tutors were offered to the participants in response to discussions of their needs. The participants in question had not opted to take up the offer of such support included in their DSA support package. However, since all the participants were offered an identical array of coping strategies within the intervention scheme, whether they attended 1:1 study skills tuition or

not, I believe this should have eliminated variables in the study skills coaching content of their support.

The regular interviews/monitoring meetings afforded me regular opportunities to monitor any heightened levels of anxiety, within a more 'objective, outsider' position, during which I endeavoured to approach the experience of the proposed inquiry in the most unbiased frame of mind possible, striving to "...dislodge and confront (our) unexamined assumptions" (Van Manen, 1997, xii). Smythe and Murray (2000) agreed that participants' views must be reported accurately, irrespective of the researcher's opinions. Cohen et al. (2007, 179) also urge preservation of neutrality in researchers adding they should also "...enable confidences to be secured."

3.5.4 Power inequalities

Due consideration was paid to the relationship between power and knowledge, in order to identify any dominant interests within the proposed research context. To minimise possible adverse effects of perceived inequalities of power within the research process, I strived to remain aware of, and sensitive to, "...the emotional and intellectual disposition and consent of those used" (Dewey 2011, 7). From their study of power relations within research interviews between vocational teachers and senior researchers in Finland, Vähäsantanen and Saarinen (2012, 493) detected a

"...shifting significance of difference and sameness between interview participants with regard to power relations, what is conveyed in interviews, and the manner in which it is conveyed".

As a reflective practitioner I continued to seek "...connections and mutual respect" rather than the "...power differences of expert/service user" (Gardner, 2014, 39), especially relating to dyslexic individuals. I aimed to promote an

atmosphere of “...active partners in the interview” (Doody and Noonan, 2013, 31) throughout the inquiry.

The topic of my research enquired into sensitive and personal aspects of participants’ experiences over some time, during which a closer relationship based on mutual trust developed. In addressing my ethical conflict when writing about interviewees I agreed with Josselson’s admission that:

“My guilt, I think, comes from my knowing that I have taken myself out of the relationship with my participants (with whom, during the interview, I was in intimate relationship) to be in a relationship with my readers. I have, in a sense, been talking about them behind their backs and doing so publicly. Where in the interview I had been responsive to them, now I am using their lives in service of something else, for my own purposes, to show something to others” (Josselson, 1996,70).

The responsibility of balancing absolutist ethics with a relativist stance must rest with me as the researcher, linked with the advantages of new coping strategies for the participants and the benefit of the research findings being offset against any distress experienced by the participants. I was gratified to be told by all 13 participants that they felt they had gained significant benefits from taking part in this research project, in discovering hitherto unrecognised strengths and in learning new ways to enable them to develop and progress academically. Participants expressed satisfaction in being instrumental in helping to revise the way dyslexic HE students are supported in the University.

3.6 Research design and Sampling

This research project used a convergent parallel mixed-methods approach to collect and analyse quantitative and qualitative data concurrently, in answer to the research questions detailed in the previous chapter (Tashakkori and

Teddlie, 2010; Creswell 2014). The final report was written to allow for triangulation of data (Gray, 2004; Cohen et al., 2007; Saldaña, 2009; Brinkmann, 2013; Creswell, 2014). This methodological approach provided the opportunity for data to be compared, to gain a summative interpretation of the findings, which yielded holistic responses to the research questions, within the constraints of a small-scale enquiry (Creswell 2014). It aimed for a triangulated collation of quantitative data from diagnostic assessments and an online survey, with qualitative data from open-ended survey questions and regular, individual interviews/monitoring meetings (Burden, 2005). This methodology allowed evidence gathered from all sources to be used to "...build a coherent justification for themes" Creswell (2014, 201), adding to the study's validity. As Dane (2011, 9) observed,

"Sometimes the goal of research is prediction, identifying relationships that enable us to speculate about one thing by knowing about some other thing".

By recognising relationships between phenomena, such as participants' individual triggers for cognitive immobilisation, or between specific dyslexic profiles and the frequency of dyslexic HE students experiencing cognitive immobilisation, the findings of this research may allow prediction of the occurrence of this phenomenon. My aim was to design for *transforming* the academic experiences of dyslexic HE students rather than *reproducing* their current experiences, as encouraged by Brinkmann (2013).

The regular interviews/monitoring meetings with participants included their views on their personal triggers and any current coping strategies relating to their incidences of cognitive immobilisation, together with their evaluations of the efficacy of new coping strategies introduced in the researcher's intervention

programme offered during the meetings throughout this part of the project. It was envisaged that "...thick descriptions necessary to understand processes..." (McEwan & McEwan, 2003:8) of individual experiences would be assembled from qualitative data. Documentary evidence relating to numbers of dyslexic HE students failing to complete their courses, possibly with reasons, was sought from the University's Wellbeing Centre and Student Services. The whole project was conducted over three terms in one academic year, in one UK university. I chose to work with all the volunteers from those who completed the survey to "...maximise the utility of information from small samples" (Flyvbjerg, 2006:230), using my knowledge of the field, rather than choosing case-study approach with a smaller number of participants.

3.6.1 Profiles of Samples

(i) Survey

The following is a general profile of the 40 respondents to the survey, all of whom were current students at the University and had been formally assessed and identified as being dyslexic when they completed the questionnaire (see Appendix B for survey questionnaire).

8 (20%) were male and 32 (80%) female;

5 (12.5%) in their first year, 14 (35%) in their second year,

14 (35%) in their third year and 7 (18%) were postgraduates.

37 (92.5%) full-time students and 3 (7.5%) part-time;

(ii) Specialist Dyslexia Support Tutors

6 tutors, 5 females and 1 male, who had been supporting between 4 and 20 dyslexic students a year at the University, for between 3 and 7 years, completed the questionnaire described in the previous chapter (see Appendix C).

(iii) Participants in the Latter Phase of the Project

13 of the respondents of the survey volunteered to complete the main research project which ran between November 2015 and May 2016. Of these participants

4 were male and 9 were female;

2 were completing their first year at the university,

5 were completing their second year,

4 were completing their third year and

2 were postgraduate students.

All except one of the 13 were full-time students.

3.6.2 Overview of chosen methods

Qualitative data was sought from semi-structured interviews with six Specialist Dyslexia Support Tutors engaged at the University, concerning their individual experiences of incidence of cognitive immobilisation among dyslexic HE students they had supported and management strategies they recommended as part of their study skills support. Tutors were encouraged to relate their observations of students who had experienced the escalation of stress/anxiety resulting in their having to take a study break or leave their course. Tutors were invited to relate instances of coping strategies being successful applied by their students to avoid this phenomenon.

The initial survey to establish the incidence of cognitive immobilisation was sent to all students at the university, via their university e-mail account, inviting

response from those who had been formally diagnosed as dyslexic. A paper-based version of the questionnaire was offered but was not requested by any respondents. After completing the online survey, respondents who had reported experiencing cognitive immobilisation were invited to volunteer to take part in the rest of the project which ran for the rest of the academic year. 13 students volunteered to complete the rest of the project after considering the research requirements and giving their written informed consent for their data to be used for the purposes of this enquiry (see Appendix A).

These 13 participants were first invited to attend a 1:1 meeting with the researcher, bringing with them a copy of their diagnostic assessment report or their university needs assessment report, confirming their registration as dyslexic students. During this initial meeting participants were interviewed on their experiences of fluctuating levels of self-esteem, stress and anxiety, as well as the frequency they experienced instances of cognitive immobilisation.

Participants were also assessed using the four diagnostic assessments described in more detail below. Participants were shown how to complete the three self-reporting forms for monitoring self-image/self-esteem, anxiety and hopelessness and given a notebook in which to record incidences of cognitive immobilisation, together with any additional notes on their fluctuating emotional status that they wished to record. Supplies of the self-reporting forms were issued to each participant on the colour of paper they requested, according to their visual stress requirements. Significantly, only one of the 13 requested white paper.

The 13 participants were asked to meet briefly (approx.30 mins) every two/three weeks with the researcher on a 1:1 basis to monitor any self-reported incidence of cognitive immobilisation and/or fluctuation in their emotional status. This was

achieved by the researcher maintaining graphical representations of the results of the self-reported assessments. Also, during these 1:1 interviews/monitoring sessions, elements of the programme of new coping strategies were introduced, which the participants were invited to appraise, feeding back their views on the efficacy of the strategies they chose to attempt.

3.6.3 Mixed Methods Study

In response to the research questions, both qualitative and quantitative data were collected and analysed, both separately and together, affording opportunities for triangulation, allowing for comparison of different perspectives drawn from the two types of data (Creswell, 2014). The sample sizes were 40 respondents for the online survey; six Specialist Dyslexia Support Tutors and 13 participants who volunteered to take part in the main, latter part of the project. Detailed profiles of each of these samples is given above. The intricacies of the research design, including the timings (sequential and/or concurrent) and ways in which the two forms of data were collected and integrated into the project are clarified within Table 3.1 below. This table shows the method of data collection, type of data, sample size and how the data were analysed relating to each of the research questions, revealing directions of triangulation.

Table 3.1 Outline of research design

Research Question	Method of Data Collection	Type of Data	Sample size	Analysis
1. What is the perceived incidence and what are the possible triggers of cognitive immobilisation amongst HE students who are dyslexic (in the views of the students and their Specialist Dyslexia Support Tutors)?	Survey sent to all students at one UK university, with instructions that only dyslexic students who hold a diagnostic assessment report are eligible to respond. Via University's internal e-mail using the online surveying tool, Survey Planet. [Paper copies available but none requested]	Quantitative from 15 closed questions	40	Percentages SPSS
		Qualitative from 2 open questions	40	Thematic coding/ description
	From the survey respondents, volunteers who have reported experiencing cognitive immobilisation were invited to participate in the rest of the project		13	
	Initial semi-structured interviews with 13 participants to discuss/expand on their survey responses	Qualitative	13	Thematic coding/ description
	Semi-structured interviews with Specialist Dyslexia Support Tutors contracted to the University through different agencies on their experience of cognitive immobilisation with their students and any coping strategies they use/find effective in managing it.	Qualitative	6	Thematic coding/ description
	Self-reported incidences of cognitive immobilisation via brief diarised entries throughout 2 nd and 3 rd terms of one academic year. Reported at regular [every 2/3 weeks] prearranged 1:1 monitoring meetings with researcher	Quantitative [frequency of incidences = number of incidences ÷ number of weeks in self-reported timeframe]	13	Related to ongoing Ipsative records of fluctuation emotional status maintained as graphs
		Qualitative [semi-structured interview/discussion]	13	Thematic coding/ description

Research Question	Method of Data Collection	Type of Data	Sample size	Analysis
2. What relationships appear to exist between the incidence of cognitive immobilisation and (a) memory and learning?	All participants were assessed initially using Test of Memory and Learning – 2 (TOMAL-2 (Reynolds & Voress, 2007)) which includes nine core	Quantitative	13	Scored using examiner's manual. Results discussed with

<p>(b) emotional status in terms of:</p> <ul style="list-style-type: none"> Self-esteem? Anxiety? 	<p>indexes examined. TOMAL-2 is a standardised, comprehensive memory battery comprising a core battery of eight subtests (four verbal, four nonverbal), whose scores contribute to a Verbal Memory Index and a Nonverbal Memory Index. These scores combined contribute to the Composite Memory Index. Six supplementary subtests (four verbal, two nonverbal) can be used to determine a broader assessment of memory within the areas of Delayed Recall, Attention/Concentration, Sequential Memory, Free Recall, Associative Recall and Learning.</p>	<p>[Usual qualitative observations recorded during psychometric assessment recorded on standard assessment forms may reveal common trends]</p>		<p>students at next 1:1 monitoring sessions.</p> <p>The individual profiles obtained using TOMAL-2 were also analysed in relation to the data obtained from participants' ongoing self-reported incidences of cognitive immobilisation [in a diary] and fluctuating levels of emotional status in terms of self-esteem, self-image, anxiety and hopelessness (feelings about the future, loss of motivation and expectations).</p>
	<p>All participants were assessed initially using The Self Image Profile for Adults (SIP-Adult) (Butler & Gasson, 2004). It is designed for ease of self-reporting within 10 minutes and participants were asked to rate how they feel (self-image) and how they would like to be, the discrepancy between the two scores providing an estimate of self-esteem every week. The score sheets were collected approximately fortnightly by the researcher at each monitoring meeting conducted on a semi-structured interview basis.</p>	<p>Quantitative (= data from initial assessments and weekly self-reported forms)</p>	13	<p>Scored using examiner's manual. Individual graphs showing Ipsative trends.</p>
		<p>Qualitative (= semi-structured interview/discussion)</p>	13	<p>Thematic coding/description</p>
	<p>All participants were assessed initially using The Beck Anxiety Inventory (BAI) (Beck & Steer, 1993). This uses a 21-item scale to measure the severity of anxiety in adults and adolescents over 17 years and is designed for self-administration, taking about 5 minutes. Weekly data from</p>	<p>Quantitative (= data from initial assessments and weekly self-reported forms)</p>	13	<p>Scored using examiner's manual</p> <p>Individual graphs showing Ipsative trends.</p>

<ul style="list-style-type: none"> • Hopelessness ? 	this test enabled participants' fluctuations in anxiety levels to be monitored. The score sheets were collected approximately fortnightly by the researcher at each monitoring meeting.	Qualitative (= semi-structured interview/ discussion)	13	Thematic coding/ description
	All participants were assessed initially using The Beck Hopelessness Scale (BHS) (Beck & Steer, 1993) , The BHS consists of 20 self-reported true-false statements, taking about 5 minutes, assessing the extent of the participant's negative expectancies about the immediate and long-range future. The score sheets of weekly data were collected approximately fortnightly by the researcher at each monitoring meeting.	Quantitative (= data from initial assessments and weekly self-reported forms)	13	Scored using examiner's manual Individual graphs showing Ipsative trends
		Qualitative (= semi-structured interview/ discussion)	13	Thematic coding/ description
	13			Final comparative Analysis to discover common trends

Research Question	Method of Data Collection	Type of Data	Sample size	Analysis
3. What strategies, if any, for coping with cognitive immobilisation are used by dyslexic HE students and how efficient do they perceive them to be in managing incidences of cognitive immobilisation?				
(a) self-devised	Ongoing semi-structured monitoring meetings/interviews with students	Qualitative	13	Thematic coding/ description
(b) proposed by Specialist Dyslexia Support Tutors	Semi-structured interviews with Specialist Dyslexia Support Tutors at beginning of the project	Qualitative	6	Thematic coding/ description
(c) other coping strategies employed in disciplines outside education in the management of a very similar phenomenon, introduced to the participants during the project	During the ongoing semi-structured monitoring meetings/interviews, all participants were offered an intervention programme devised by the researcher, introducing coping strategies found in the literature to be efficacious in the	Qualitative	13	Thematic coding/ description

	management of phenomena similar to cognitive immobilisation experienced by dyslexic HE students. Participants' use of any of these strategies was at their individual discretion and was supported by the researcher throughout the project on a one-to-one basis with ongoing feedback recorded in the regular meetings. At the end of the project participants were invited to provide feedback on coping strategies they have found beneficial to them.			
4. How may these findings be best used to inform effective coping strategies to overcome cognitive immobilisation in dyslexic HE students?	All data collected as above from Survey respondents, Specialist Dyslexia Support Tutors and Participants	Quantitative and Qualitative		<p>Identification of trends and/or links between different sets of data.</p> <p>Assessment of profiles, Individual graphs showing ipsative trends, SPSS , thematic coding/description</p>

3.7 Examining the chosen research instruments

In order to gain a holistic response to the research questions, the mixed methods approach planned for the main project collated quantitative data from diagnostic assessments and analysis of emergent themes garnered during the survey and individual interviews. Documentary evidence held by the University Wellbeing Centre/ Student Services was sought to support survey findings. Thick descriptions of individual experiences were gathered during interviews with dyslexic HE students and Specialist Dyslexia Support Tutors.

3.7.1 Documentary evidence

The Student Wellbeing Centre within the University's Student Services Department stated that no data which relates to dyslexic students' failure to complete or taking study breaks from their academic course due to stress and/or anxiety exists, and for ethical reasons any such data would not be made available for use in this inquiry. Likewise, data concerning the percentage uptake of dyslexia study skills tuition offered to dyslexic students at the university was not available, in the interests of preserving confidentiality.

3.7.2 Survey

The online survey was compiled using SurveyPlanet and consisted of 17 questions, the first 15 being mandatory, closed questions and the last two being optional open questions. A copy of the survey questionnaire appears in Appendix B. I had naively assumed I would be allowed adequate limited access to the dyslexic student population in the University, albeit via Student Services or the Student Wellbeing Centre. However, for reasons of confidentiality, the Disability Officer at the Wellbeing Centre at the University stated in a personal email (2015), that it was not possible to forward surveys to specific student groups, but the Centre routinely advised researchers to "...advertise their surveys via the internal communications email that is sent out to all students instead". As this could have resulted in non-dyslexic students completing the survey which would risk compromising the target population, the introduction to the survey instrument was amended to clarify that it is addressed to dyslexic students only. This was reinforced by the inclusion of questions specific to information on potential respondents' dyslexia diagnostic assessment report or assessment of needs report relating to their recorded Standard Score for

Attention/Concentration Index; whether they had been offered/accepted 1:1 specialist support for their studies and how many hours per year specialist support each respondent had been awarded.

Since members of the target population were dyslexic, the questions needed to be succinctly phrased in straightforward language in order to avoid misunderstandings, which could have affected the integrity of the data collected. It was important that the text of the questions was double spaced in a *sans serif* font, such as Arial, of 14-point font size minimum and left aligned, making them more easily accessible to dyslexic students. The target population for the survey was all the students at the university who were registered as being dyslexic at that time. In anticipation of a large number of respondents, I acknowledged the possible advantages of using an online surveying tool, such as SurveyPlanet. According to Denscombe (2014:13), internet surveys save time and money and speed up data processing with the facility for direct downloading into data files, with the potential to generate both quantitative and qualitative data in an easy-to-use electronic format. This was found to be the case.

It was hoped that a low response rate (Cohen et al., 2007) would be avoided by offering an incentive to participants who completed the whole project, in recognition of the time commitment involved, in the form of entry into a draw for a £150 Amazon gift voucher, previously mentioned, when the research project was concluded. However, the offer of feedback may itself be regarded as incentive enough to all the participants to take part (Denscombe 2014). Reminders were sent to reach all potential respondents who had not replied after one week (Denscombe, 2014).

In designing the survey questions using a Likert scale for the respondents' answers, I ensured there was the option to register no opinion such as "don't know" or "hadn't thought about it" in order to avoid collecting skewed data by forcing respondents to choose one of the other options which did not truly reflect their opinions (Dane, 1995; Cohen et al., 2007). In favouring the use of closed questions, the survey questionnaire elicited empirical (quantitative) data which were more readily applied and analysed in answering the research questions pertaining to the existence and perceived triggers of cognitive immobilisation. Being precisely structured, the replies to these closed questions yielded frequencies of response suitable for statistical analysis, also allowing for comparisons to be made across the sample. (Cohen et al. 2007). Some of the closed questions were intended to establish the respondents' having been formally identified as being dyslexic, which served to verify the nature of the sample, since the University's confidentiality policy meant that the survey questionnaire had to be sent to all students, even though it was addressed specifically to dyslexic students at the University. It is significant to note that some respondents took the opportunity to add their personal comments within the two open questions; one question relating to their evaluation of coping strategies they had employed to avoid or overcome their experiences of cognitive immobilisation, and the last question, an invitation for 'further comments'. The qualitative data gathered from respondents who answered the two optional, open questions revealed some startling, yet very moving insights into the experiences of dyslexic HE students within the context of this phenomenological enquiry, enriching the empirical findings of this survey.

3.7.3 Diagnostic assessment

Quantitative data were collected by way of diagnostic assessment of the 13 participants who volunteered after completing the survey, using 4 assessment instruments currently used by professionals in the field. I am qualified to administer these tests (Assessment Practising Certificate No: 500002187-IF5059).

(i)Test of Memory and Learning – 2nd Edition (TOMAL-2) (Reynolds and Voress, 2007)

This detailed, standardised assessment examines a comprehensive test battery designed to provide a comprehensive assessment of memory skills (Adams and Reynolds, 2009,141). It comprises a core battery of eight subtests (four verbal and four nonverbal, details of which may be seen in Table 3.2 below), whose scores contribute to a Verbal Memory Index and a Nonverbal Memory Index. These scores combined contribute to the Composite Memory Index. Eight supplementary subtests can be used to determine a broader assessment of memory within the areas of Delayed Recall, Attention/Concentration, Sequential Memory, Free Recall, Associative Recall and Learning (Reynolds and Voress, 2007). It is normed for ages 5 years through to 59 years 11months. Scores for each subtest are calculated within a 95% confidence interval and standard errors of measurement (SEMs) for TOMAL-2 are uniformly low, based on the high internal consistency reliability estimates. All assessments and interpretations of results were carried out by the researcher in order to avoid compromising their validity.

The following information describing the subtests in more detail is adapted from the TOMAL-2 Examiner's Manual (Reynolds & Voress, 2007) and Essentials of WRAML2 and TOMAL-2 Assessment (Adams & Reynolds, 2009).

Table 3.2 Details of TOMAL-2 subtests

Subtests	Method of assessment	Aspect of memory and learning assessed
Verbal subtests		
Memory for Stories (MFS)	MFS is a verbal subtest requiring recall of two short stories read aloud by the examiner.	It provides a measure of meaningful recall, in which many examinees <i>may</i> form semantic associations as part of their recall strategy and it is also related to sequential recall in some instances.
Word Selective Reminding (WSR)	WSR is a verbal free-recall task on which the examinee learns a word list and repeats it, only to be reminded of words left out in each case. Trials continue until mastery is achieved or until six trials have been attempted.	It tests learning and immediate recall functions in verbal memory. Sequence of recall is unimportant. Depth of processing may be reflected in forgetting or retention of words previously recalled that are not “reminded”, and are later forgotten or continuously recalled.
Object Recall (OR)	The examiner presents a series of pictures, pointing at each one while saying the name of the picture aloud. The pictures are removed and the examinee is to recall them. The process is repeated until mastery is achieved or until five trials have been attempted.	Verbal and nonverbal stimuli are thus paired, and recall is entirely verbal, creating a situation found to interfere with recall for many (children) with learning disabilities but to be neutral or facilitative for nondisabled (children).
Paired Recall (PR)	PR is a verbal paired-associate learning task on which the examinee is required to recall a list of word pairs when the first word of each pair is	This is a classic task of easy and hard pairs (easy pairs of words are those with common associations like <i>hot-cold</i> that almost no one fails to recall, while hard pairs have no logical

	provided by the examiner. four trials are attempted.	reason for being paired) are included. The easy pairs serve as a measure of cooperation and effort for all but the most egregiously impaired, since most of the variance in performance across examinees is seen in the hard pairs.
Nonverbal Subtests		
Facial Memory (FM)	FM is a nonverbal subtest requiring recognition and identification of a face from a set of distractors – black-and-white photos of faces of individuals of various ages, both genders and various ethnic backgrounds.	The subtest assesses nonverbal meaningful memory in a highly practical fashion and one that has been extensively researched. Recalling faces is quite different from recalling inanimate objects and abstract stimuli. Sequencing of responses is unimportant.
Abstract Visual Memory (AVM)	The examinee is presented with a standard stimulus and is then required to recognise the standard from a display of six abstract figures.	This subtest assesses immediate recall for meaningless figures when order is unimportant. Attempts at verbal cueing by examinees tends to retard or interfere with performance on AVM, a subtest that emphasises visual memory.
Visual Sequential Memory (VSM)	Meaningless geometric designs are presented in one order, followed by presentation of a different order of the stimuli. and the examinee identifies the	This subtest requires recall of the sequence of a series of meaningless geometric design for which verbal cues are very difficult to derive or apply.

	order in which the designs originally appeared.	
Memory for Location (MFL)	The examinee is presented with a set of large dots distributed on a page and then presented with a blank grid and asked to recall the location of the dots in any order.	MFL assesses spatial memory.
Visual Selective Reminding (VSR)	VSR is a nonverbal analogue to WSR (above) whereby examinees point to specified dots on a card, followed by a demonstration by the examiner, and are reminded only of items recalled incorrectly. As with WSR, trials continue until mastery is achieved or until five trials have been attempted.	It tests learning and immediate recall functions in visual memory. Sequence of recall is unimportant. Depth of processing may be reflected in forgetting or retention of positions of dots previously recalled that are not “reminded”, and are later forgotten or continuously recalled.
Digits Forward (D)	This is a common digit span task, with test items becoming longer as the test progresses.	DF assesses sequential memory for digits.
Letters Forward (LF)	This is a language-related analogue to common digit span tasks using letters as the stimuli in the place of numbers	LF assesses sequential memory for letters.
Manual Imitation (MI)	The examinee is required to reproduce a set of ordered hand movements in the sequence presented by the examiner.	MI is a psychomotor, visually based assessment of sequential memory.

Digits Backward (DB)	This is the same basic task as Digits Forward except the examinee recalls the numbers in reverse order.	This requires both sequential memory and manipulation of the stimuli using working memory.
Letters Backward (LB)	This task is a language-related analogue to the Digits Backward task, using letters as the stimuli instead of numbers.	This requires both sequential memory and manipulation of the stimuli using working memory.
Memory for Stories Delayed (MFSD)	The examinee is asked to recall information from the MFS 30 minutes later.	This assesses learning and the decay of memory. It is also related to attentional mechanisms and the relative intactness of a variety of cognitive processes.
Word Selective Reminding Delayed (WSRD)	The examinee is asked to recall the word list learned in WSR 30 minutes later.	This assesses learning and the decay of memory. It is also related to attentional mechanisms and the relative intactness of a variety of cognitive processes.

The TOMAL-2 assessment was administered to each participant on an individual basis and the resulting profile was discussed at each participant's first 1:1 interview/monitoring meeting. It should be noted that the participants were not previously aware of the nature of subtests/Composite Indexes other than the five subtests producing the Attention/Concentration Index (ACI) which is used for the dyslexia diagnostic assessment. The only subtests of TOMAL-2 purporting to measure working memory are Digits Backward (DB) and Letters Backward (LB), which require backward recall of test material, indicating "...the ability to hold items in mind while attending to further demands" (Backhouse and Morris, 2005, 21), As Adams and Reynolds (2009, 214) pointed out "The

subtest level of interpretation of any test, TOMAL-2 included, is the most tenuous level of score interpretation". When these two subtest scores are combined as indicated above to arrive at a score for the Attention/Concentration Index, it may be suggested that the actual measure of working memory ability within the ACI becomes further occluded, giving rise to doubts on the validity and reliability of these actual test scores.

Any strategies employed by participants to enhance their individual performances during their completion of each of the subtests, were routinely recorded on the test sheets. For example, during forward recall of orally provided digits and letters, rehearsal of the test material is common, whereas visualisation is often used to facilitate backward recall (Adams and Reynolds, 2009). The very fact that some participants are able to enhance their performance in their completion of some subtests may further suggest the actual quantitative results may not be considered as strictly accurate. A further caveat included within the dyslexia diagnostic assessment report concerning the results obtained using TOMAL-2, specifically for the subtests used for the Attention/Concentration Index, emphasises that these tasks are quite brief (2-3 minutes each) and do not give information on sustained levels of concentration such as would be required for multitasking by students necessary throughout their HE studies. Nevertheless, the actual scores achieved using TOMAL-2 are the scores provided in the diagnostic reports received by dyslexic students. These issues are considered further in section 4.5 of Chapter 4 in relation to the findings. Consequently, explanations of the resulting profiles were shared and discussed individually with the participants.

The individual profiles produced by TOMAL-2 were also analysed in relation to the data obtained from participants' ongoing self-reported incidences of cognitive immobilisation (in a diary and/or verbally at regular interviews/monitoring meetings with the researcher) and fluctuating levels of emotional status in terms of self-esteem (self-image); anxiety and hopelessness (feelings about the future, loss of motivation and expectations). These fluctuations were monitored throughout the main part of the project, using the following three diagnostic assessment tools, to obtain ongoing ipsative assessments of individuals' fluctuations in emotional status: The Self Image Profile for Adults (SIP-Adult); The Beck Anxiety Inventory (BAI) and Beck Hopelessness Scale (BHS). These three assessment tools are described in more detail below and were chosen to be used in this inquiry specifically for their ease of use in self-reporting circumstances. Copies of the modified self-reporting forms used in this project may be found in Appendices D, E and F. These tests are standard, normed assessments and have the added advantage of being designed for quick (10 minutes, 5 minutes and 5 minutes, respectively), simple self-reporting, rather than those used by Burden (2005; 2008) or Carroll and Iles (2006), previously described in Chapter 2. However, I acknowledged that drawbacks to self-reporting in the absence of the researcher may give rise to an incorrect or incomplete picture, but this must be balanced against the possible spontaneity of data recording (Cohen et al., 2007). It should be noted that these three assessment tools are currently used to obtain 'snapshot' views of the emotional status of individuals, sometimes used by professionals to gauge the effectiveness of an individual's intervention programme by undertaking a further summative assessment. However, I believe that my innovative use of these tools to describe individual trends by using 'snapshots'

over the period of the project may rely on their trustworthiness within current professional use,

(ii) The Self Image Profile for Adults (SIP-Adult) (Butler & Gasson, 2004)

This assessment tool consists of 30 self-descriptions derived from a representative sample of the population between 17 – 65 years old. It is a brief self-report measure providing both a visual display and scoring procedure and is designed for ease of self-reporting within 10 minutes and participants rate how they feel (self-image) and how they would like to be, the discrepancy between the two scores providing an estimate of self-esteem. A visual profile with ratings of self dominantly towards the right (rating 6) characterises a positive sense of self as opposed to most ratings towards the left (rating 0). Item scores ≤ 2 standard deviations below the age and gender highlight the score as noteworthy. The SIP-Adult is considered to meet an acceptable level of internal consistency, with validity and reliability of the test verified in the test manual.

(iii) The Beck Anxiety Inventory (BAI) (Beck & Steer, 1993)

This uses a 21-item scale to measure the severity of anxiety in adults and adolescents over 17 years of age and is designed for self-administration, taking about 5 minutes. Total scores from 0-7 indicate a minimal level of anxiety; 8-15 indicate mild anxiety; 16-25 indicate moderate anxiety and scores of 26-63 indicate severe anxiety. BAI has high internal consistency reliability with both clinical and nonclinical samples and it was reported significantly correlated with the State-Trait Anxiety Inventory employed in the Carroll and Iles (2006) study mentioned previously. The validity of the BAI is established by the correspondence of its symptom criteria to those presented in the DSM-III-R

(Diagnostic and Statistical Manual of Mental Disorders) for diagnosing patients with panic and anxiety disorders. Data from this test enabled participants' fluctuations in anxiety levels to be monitored.

(iv) The Beck Hopelessness Scale (BHS) (Beck & Steer, 1993)

The BHS consists of 20 self-reported true-false statements, taking about 5 minutes to complete, assessing the extent of the participant's negative expectancies about the immediate and long-range future, which are consistent with depression but not with anxiety. The total item scores range from 0 to 20 with higher scores indicating greater hopelessness. These results may reflect the extent of learned helplessness of a dyslexic HE student, describing their belief that nothing they choose to do will affect what happens to them. Although the BHS scores only estimate the severity of a person's negative view of their future, the ongoing ipsative assessments will describe fluctuations in this area. The test manual describes reliability and validity as being consistent with other similar tests used by specialists in the field. This test was developed by the same authors as BAI and is generally recommended to be administered in conjunction with the BAI, since individuals with anxiety symptoms frequently describe experiencing depressive symptoms.

Participants were given supplies of the self-reporting forms on their preferred colour of paper, together with an A4 wallet to assist their recordkeeping.

Participants' anonymised records were reviewed and retained by the researcher at each 1:1 meeting, for ongoing monitoring.

3.7.4 Diary/notebook

Each of the 13 participants was also issued with a diary/notebook to make optional, brief, dated notes of changes in emotional status, as easily as possible, as a way of collecting spontaneous, uncontrived qualitative data to run

alongside the empirical data from corresponding self-reporting of emotional status. As Alaszewski (2006: 43) opined,

“Diaries provide a way of accessing data in a relatively natural form and can therefore be used to explore the taken-for-granted aspects of social interaction”,

thus providing an authenticity which may evade the interview environment.

The advantage of notes made without delay allows for much less change in the reporting of an incident or an emotional episode at a later date (Dane, 1995).

However, having time between meetings does afford the opportunity for participants to write up relevant notes after the event, with the attendant risk of including inaccuracies, or even to forget to include events. Unfortunately, poor memory is a very common characteristic of dyslexic individuals.

3.7.5 1:1 Semi-structured interviews

Qualitative data were sought from interviews with six Specialist Dyslexia Support Tutors engaged by the University through agencies and from 1:1 initial interviews and ongoing interviews/monitoring sessions every two/three weeks with 13 participants during the main phase of the study.

(i) Specialist Dyslexia Support Tutors

Specialist Dyslexia Support Tutors contracted by the University were contacted via their employing agency and invited by email to meet with the researcher on a 1:1 basis at their place of work for a short, semi-structured interview. Six tutors agreed to take part in the project. The interview related to their experience of incidences of cognitive immobilisation in dyslexic HE students they had supported at the University; coping strategies the tutors had offered in the course of delivering their support and their perceived efficacy of these

strategies. The tutors also included comments that they recalled from students they had supported regarding the success of using the coping strategies introduced in the support programme currently offered to dyslexic HE students. Tutors were interviewed at the beginning of the project, before any dyslexic students at the University were assigned to them. Any students continuing their support with a Tutor who had been interviewed during this project were not deemed eligible to volunteer to participate in the rest of the project, in order to avoid the possible introduction of confounding variables or bias.

The interview structure consisted of two introductory closed questions, followed by five open questions drawing on the knowledge and experience of the tutors regarding HE students experiencing cognitive immobilisation. A space for a signature confirming consent to use information from the interview was also included. In response to a request from two of the tutors, the interview questions were sent to all six tutors by e-mail two days before their interviews to allow them to consult their files to verify the accuracy of their information (see Appendix C).

(ii) Dyslexic HE student participants

The interviews/monitoring meetings attended by the 13 participants were all recorded on a 1:1 basis which ensured confidentiality and encouraged the participants to speak freely without fear of being overheard by other library-users. This arrangement was easy to arrange and manage, since having only one source of opinions and views expressed facilitated the subsequent verbatim transcription of the audio files. Interviews took a semi-structured format to allow for flexibility, permitting individual experiences to be recounted (Denscombe, 2014; Pollak, 2005) and as Doody and Noonan (2013, 28) pointed out,

“...an interview is a method of collecting data in which quantitative (closed) or qualitative (open-ended) questions can be asked”. An interview guide was developed “...to collect similar types of data from all participants and create a sense of order” (Doody and Noonan, 2013, 30; Holloway and Wheeler, 2010). The only predetermined questions posed during the interviews/monitoring meetings related directly to the data provided on the self-reported assessment forms documenting participants’ fluctuating emotional status and diarised entries recording incidences of cognitive immobilisation since the previous meeting. Discussion of the latest data was stimulated using neutral prompts to encourage participants to expand their accounts of their experiences in their own words. New coping strategies were outlined verbally and more detailed instruction, including written notes, was supplied for strategies which individual participants expressed a wish to trial. Feedback on the success of strategies trialled was elicited during subsequent interviews/monitoring meetings, again encouraging participants to give their own accounts of their experiences.

Individual experiences of cognitive immobilisation were found to vary in frequency and severity of effect for each dyslexic student and in the past were reported to have caused some students to take study leave until they felt able to continue their course. Participants were also able to view the graphical representations of the scores from their self-reported data relating to their fluctuating levels of self-esteem, self-image, anxiety and feelings of hopelessness. Participants were encouraged to reflect on any changes indicated, in relation to their reported incidences of cognitive immobilisation, linked to events they had recorded since their previous meeting.

I ensured I allowed participants to use their own words to describe their experiences, taking care to avoid introducing a common language, so that the

themes identified were actually present in the data and not just a reflection of my own prejudices. Questions posed during the interviews were therefore mostly 'open', avoiding seeking direct replies which may have detracted from the participant's "...own meaning-making frame" (King and Horrocks, 2010, 221). Here the importance of free association, which was evident in spontaneous, *ad hoc* diarised entries by the participants, was recognised (Hollway and Jefferson, 2013). During interviews, I encouraged the telling of a "...neutral account of a pre-existing reality" rather than encouraging the participant to tell a story where they made "...the relevance of the telling clear" by "constructing" the reality of their experiences (Hollway and Jefferson, 2013).

The nature of interviewing was important so that the best information was discovered from participants on their views/experiences of cognitive immobilisation. To this end it was essential that participants did not become so aware of the interviewer's agenda that their true feelings/opinions were not revealed. It was central to the gathering of qualitative data that concrete examples were subtly sought and teased out from each interviewee.

Subsequent interviews allowed for reflection, permitting any emergent unexpected themes to be re-examined using the participant's "... ordering and phrasing, aiming to retain the focus on their lives and their telling" (King and Horrocks, 2010, 221).

3.7.6 Intervention Programme

This research project was concerned equally with improvements in students' emotional status as with improvements in their academic performance.

Literature suggested improvement of support for dyslexic HE students could best be accomplished from two concurrent approaches: firstly, by reducing

stress and anxiety by improving resources and general awareness to provide a more dyslexia-friendly HE environment, and secondly, by acknowledging the importance of identifying and effectively managing the emotional aspects of their dyslexia (Burden, 2005; Riddick et al., 1999; Price and Skinner, 2007; Eissa, 2010; Pollak, 2005; Hen and Goroshit, 2012; Jensen, 2008).

As Punch (2005) observed, a research project based on others' findings may be of more value than as a 'stand-alone' inquiry. However, researchers were encouraged to be aware of their views possibly being unduly influenced by the literature, "...thereby inadvertently restricting the direction of their inquiries" (Punch 2005, 42). I therefore took the decision to broaden my research into the current knowledge of occurrence of the cognitive immobilisation phenomenon within areas outside education.

Other disciplines where phenomena of a very similar nature to cognitive immobilisation had been identified within the literature suggesting sports, performance, business and life coaching, all shared successful intervention resources, the main ones being mindfulness, cognitive behavioural therapy (CBT) and neuro-linguistic programming (NLP), in conjunction with counselling skills. Similarities and parallels in terms of the language, mind-body-emotion links and coping strategies were apparent between these disciplines, implying that "When the emotional domain is included in learning then transformation is possible" (Brockbank and McGill, 2012, 26). A coping strategy may be defined as

"...a plan of action that we follow, either in anticipation of encountering a stressor or as a direct response to stress as it occurs" (Martin et al., 2009, 765),

in an effort to reduce the level of stress experienced (Kramer et al., 2012). The merits of coping strategies such as those successfully used to overcome 'choke' in sports and 'stage fright' in performing arts were trialled by dyslexic HE students participating in the latter part of this inquiry.

The 13 participants were introduced to the coping strategies included in the intervention programme and supported in using those that they chose to trial during their regular two/three weekly interviews/monitoring meetings.

Strategies which were new to most of the participants included *Meditation/Mindfulness, Controlled Breathing, Visualisation, Affirmation band, Stress Ball, Aromatherapy, 4-minute Rule, Humming/song lyrics, Opportunity to meet and talk regularly, Hand/Broken Record, Stock Phrases* and *referral to University Counselling Service*. Strategies which were more usually included in study skills but were offered in response to participants' requests included *Using weekly GANTT charts, Planning work, Turn off the spellchecker while word processing, Exam Techniques, Revision/crib cards, Roman Room, Handwriting pen/pencil grip* and *using a Dictaphone*. Descriptions of these coping strategies are included in Appendix K, as well as appearing in more detail in the following chapter revealing evaluations of their efficacy for the participants who chose to trial them.

During the regular 1:1 meetings between the researcher and the 13 participants, the monitoring of emotional status of the participants also served to transform their developmental learning through reflection, as they continually evaluated the participants' perceived benefits gained from applying new coping strategies (Brockbank and McGill (2012).

The coping strategies included in the intervention programme were offered for participants to trial within their own individual social and academic environments. A recurring theme identified by participants as exacerbating their anxiety levels and contributing to the frequency of their experiences of cognitive immobilisation, was becoming trapped in a vicious circle of avoidance, whether of a place or situation where they predict anxiety will occur (Williams, 2003, 6).

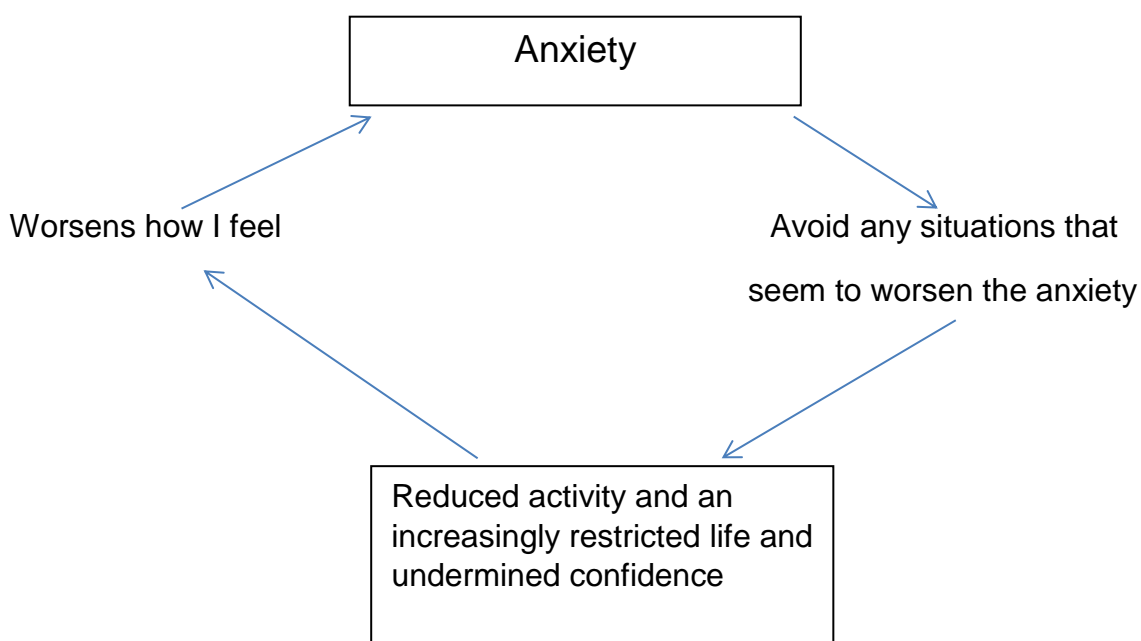


Figure 3.2 The Vicious Circle of Avoidance (Williams, 2003, 6)

Williams (2003) accurately identified that the vicious circle of avoidance, shown in Fig. 3.2 above, arises from the unhelpful habit of considering ‘*walking away*’ from difficult situations as the only way to avoid the ensuing anxiety. Successful coping strategies for this type of self-perpetuating and escalating avoidance were identified in the previous chapter and were included in the intervention programme. Other coping strategies offered to the participants “...involved challenging negative automatic thoughts...which inhibit effective personal performance” (Garvey et al., 2018, 84), are all approaches which are rooted in

cognitive behavioural coaching. Participants were also encouraged to identify and develop their strengths within goal-focused time limits.

During this enquiry the diversity in individual issues and needs of the participants in terms of their adoption of coping strategies which were effective for each of them in reducing their anxiety levels, thereby decreasing their risk of experiencing cognitive immobilisation, became very apparent. Some participants appeared not to consider possible consequences of their impulsive actions, whereas others preferred not to leave their comfort zone, being reluctant to try coping strategies which were new to them (Conor and Pokora, 2017). Having established "...trust in the participants and confidence in their capacity for development" it was then necessary for me as the researcher to "...find the appropriate method and medium for whatever they desire to learn" in order to actualise their "self-directed way" of learning (Brockbank and McGill, 2012, 29).

3.8 Quantitative data collection and analysis

The predominantly quantitative data produced by the online survey questionnaire (15 of the 17 questions were closed), a copy of which can be seen in Appendix B, was easily recorded on a database sheet, demonstrating that the questions and modes of reply had been well designed and fit for purpose. Statistical analysis between variables relating to the frequency of reported incidences of cognitive immobilisation were carried out using the SPSS software program, the results of which are explored in the following chapter. The data collected was addressed to the relevant research questions examined

in this project, as outlined earlier in this chapter. To ensure only dyslexic students completed the survey, some of the questions related specifically to the students' diagnostic assessment reports confirming they were dyslexic. All of the students who completed the survey and subsequently volunteered to continue to take part in the later phase of the project, presented a copy of their dyslexia diagnostic assessment report. Although there was no guarantee that all the survey respondents were definitely dyslexic, it was considered unlikely that a non-dyslexic student would bother to complete the survey.

The four assessment tools used during the latter phase of this project are all currently in professional use and are deemed to provide valid reliable scores for the age group under consideration. Ipsative assessment, which compares current performance with a previous performance of an individual was used for the monitoring of changes in emotional status of the 13 participants throughout the project, since this improves self-esteem and confidence and respects the unique profile of the dyslexic (Hughes, 2011). These fluctuations in emotional status were presented in the form of graphs and were available during 1:1 interviews/monitoring meetings, further generating reflective feedback comments from individual participants. As this phase of the project progressed, the participants appeared and spoke much more openly about their experiences since their previous meeting, which provided tangible points of triangulation between self-reported events and participants' descriptions of their feelings in relation to these events. The problem of reliance on self-reporting was acknowledged, as "...the stories we tell about ourselves fall short of the deeper truth of lived experience" (Elliott, 2014, 10). Drawbacks to the reliance on self-reporting information were minimised by reflection and clarification during the

regular 1:1 interviews/monitoring sessions attended by the dyslexic HE students.

The results of assessments TOMAL-2, SIP-Adult, BAI and BHS were compiled using the relevant manuals. All 4 assessment tests were in current use by professionals in the field and so may be taken as acceptable instruments of measurement, providing data sufficiently robust for further analysis. The results obtained in TOMAL2 were calculated within a 95% confidence interval using standard errors of measurement (SEM) presented in the test manuals.

3.9 Qualitative data collection and analysis

In collecting qualitative data to convey detailed descriptive themes, my aim was to "...transport readers to the setting and give the discussion an element of shared experiences" (Creswell (2014, 202), to enrich and add to the validity of my findings. To further validate my results, I acknowledged that I should "...also present negative or discrepant information" (Creswell, 2014, 202) which may not coalesce with an apparently established theme, lending a more realistic account of findings.

Although it is the researcher's responsibility to "...convey their intentions, interpretations, and conclusions as clearly and coherently as possible" (Noddings, 2016,139), readers of the account of this enquiry will inevitably construct their own meaning from it, as part of the inevitable hermeneutic practice. Therefore, the most accurate picture possible must be presented by the researcher for the readers' consideration, in order to minimise any interpretive departure from the descriptions of dyslexic HE students' accounts of their experiences and attendant emotional fluctuations.

Qualitative data generated from open-ended questions in the survey, interviews with Specialist Dyslexia Support Tutors, initial interviews and monitoring meetings with 13 participants were analysed by categorisation into emerging themes. This design avoided oversimplification in favour of retaining differences and highlighting complexities within a small sample (Saldaña, 2009). Qualitative data concerning participants' reported triggers for cognitive immobilisation was first sorted by matching key words or phrases collected from the verbatim transcriptions of the recorded interviews/monitoring meetings which amounted to over 100 hours. 20 distinct categories were identified in this way and these categories were subsequently grouped within three main themes of *Academic issues*, *Linked to the dyslexia label* and *Personal/family issues*. Details and descriptions of the participants' reported triggers appear in Appendix H.

Qualitative data supplied by the Specialist Dyslexia Support Tutors which were mostly duplicated were addressed directly to the research question 3(b) and 4, as seen in Chapter 4. Although the survey question inviting respondents' comments on coping strategies they had used to overcome or avoid experiencing cognitive immobilisation was not mandatory, 33 (n=40) replied. These data were coded into 11 categories using key words or phrases as sorting criteria. Details are shown in Appendix G where the respondents' comments are quoted verbatim. Data relating to individual feedback on the success or otherwise of coping strategies already tried by participants and similar feedback on the effectiveness of new coping strategies introduced and trialled by participants during the project were also coded using key words or phrases lifted from the same verbatim transcripts. Details of these coded data are also available in Appendix J and Appendix K respectively.

I acknowledged and upheld the need to allow participants in the planned enquiry to use their own words to describe their experiences, taking care to avoid introducing a common language (Coolican, 2014). This strategy ensured that the themes identified were actually present in the data and not just a reflection of my own prejudices. Here, the importance of free association which was evident in spontaneous, *ad hoc* diarised entries by the participants was recognised (Hollway and Jefferson, 2013). It is central to the gathering of qualitative data that concrete examples are subtly sought and teased out from each interviewee. Since reality was seen as socially constructed and therefore equivocal and individualistic by phenomenologists such as Hegel, Husserl, Heidegger and Schütz (Moran, 2000), individuals' beliefs depend on the individuals' unique perceptions of their experiences. In interpreting and analysing qualitative data gathered in these interview situations, albeit within a very open, loosely structured plan, Bernstein's (1974) *caveat* in Cohen et al. (2007, 25) that, "... a person's interpretation and definition of a situation are actually influenced by the circumstances at the time", was borne in mind. Qualitative data was matched to concurrent information relating to incidences of cognitive immobilisation and self-reported measurements of fluctuations in self-esteem, self-image, anxiety and feelings of hopelessness.

3.10 Conclusion

In this chapter the overall design for this research project has been described with the choice of phenomenology as the overarching paradigm, commensurate with the study of a phenomenon such as cognitive immobilisation. In a study of phenomena (as they are individually experienced), such as cognitive immobilisation in dyslexic HE students, the main focus of inquiry is on individual perception, revealing elements of existential knowing, with the possibility of new

meanings (Gray, 2004). Each stage of the enquiry has been explained and the resultant data related to the relevant research questions, allowing for triangulation between qualitative and quantitative data. Absent from other research relating to dyslexic HE students' academic attainment, this project has also featured the use of assessment tools to gather empirical data, which served to validate explorations for possible ways to predict the occurrence of high incidences of cognitive immobilisation. The following chapter will revisit the research questions in the light of the extensive data collected within this small-scale project and its analysis sought to clarify likely implications of these findings and illuminate their effects on dyslexic HE students.

CHAPTER 4 FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents an analysis of the data collected during the research project, using them to answer each of the research questions presented in chapter 1. The survey was closed after data from 40 respondents was received to allow sufficient time for the 13 volunteer participants to complete the rest of the project requirements during the remainder of the academic year. This approach was designed to allow data to be collected during as many academic issues/scenarios as possible which may trigger instances of cognitive immobilisation (CI) being experienced by dyslexic HE students during one academic year.

The principal aims of this research were

- to discover the extent of the occurrence of cognitive immobilisation in HE students who are dyslexic in one UK university and what triggers this phenomenon;
- to explore the relationship between this occurrence, individual variations in processing capacity relating to working memory/long term memory interactions and ipsative measurements of fluctuating emotional status;
- to investigate the efficacy of possible coping strategies, including those which have been employed successfully to manage similar phenomena in disciplines outside education;
- to use the findings of this inquiry for the improvement of specialist support for dyslexic HE students.

Qualitative data were collected from the survey responses (n=40); semi-structured interviews with Specialist Dyslexia Support Tutors (n=6) and verbatim reports of digitally recorded, semi-structured interviews/monitoring sessions with participants (n=13). Quantitative data were collected from the survey

responses; from diagnostic assessments undertaken by the participants using The Test of Memory and Learning – 2 (TOMAL-2) and from their self-assessments of emotional status using The Self Image Profile for Adults (SIP-AD); Beck Anxiety Inventory (BAI) and Beck Hopelessness Scale (BHS), as well as their diarised incidences of cognitive immobilisation during the research process. For clarity, findings are specifically related to each of the research questions, as are discussions of the implications of any patterns or themes emerging from these data. Outcomes were further explored in terms of possible signposting for improved specialist intervention and support for dyslexic students in Higher Education.

Anonymised profiles of the participants are given in Appendix L. It is noted that anonymity does not guarantee that the participants cannot be recognised so every effort has been made to respect their rights to confidentiality. The profiles include individual results of TOMAL-2 assessments and graphical presentations of monitored fluctuations in emotional status related to reported incidences of cognitive immobilisation, collected during regular one-to-one semi-structured interviews/monitoring sessions with the researcher. These interviews, amounting to over 100 hours, were digitally recorded and transcribed verbatim by the researcher before being coded and further analysed, to be applied to the research questions. It should be noted that some of the data gathered from these participants is incomplete, as occasions arose during this section of the project when some participants became so stressful that they were unable to complete the self-assessment paperwork every week. Some participants did not complete the self-reporting forms while on holiday breaks or during bouts of illness. Also, although Pearl withdrew from completing the self-reporting forms part-way through this phase of the project, she specifically requested she be

allowed to continue to meet regularly to gain knowledge of coping strategies and to give her verbal feedback on their efficacy for herself. She reaffirmed her agreement that all data she had provided during the project, apart from the graphical representations of her self-reported scores for SIP-AD, BAI and BHS, should be used in the final analyses. The researcher was most grateful for all the information submitted and considers the data collected sufficiently robust to be applied to answering the research questions.

4.2 Addressing the Research Questions

In order to avoid unnecessary repetition whilst preserving clarity for the reader, discussion of findings and analysis will be presented at each stage of this report. Brief profiles of the 13 participants are given in Appendix L.

Quantitative and qualitative data collected were used to address the research questions thus:

4.3 Research Question 1

What is the perceived incidence and what are the possible triggers of cognitive immobilisation amongst dyslexic HE students (in the views of the students and their Specialist Dyslexia Support Tutors)?

Evidence collected during each phase of this research project appears to support the existence and adverse impact of the cognitive immobilisation phenomenon on dyslexic HE students. This is supported by statements made by the respondents of the survey; the participants of the latter, main phase of the project and by the Specialist Dyslexia Support Tutors, relating both to their descriptions of experiencing or supporting incidences of the phenomenon and in the triggers commonly identified as instigating the experience. In addition, the perceived frequency of incidence of cognitive immobilisation was reported as being higher in dyslexic HE students than for their non-dyslexic peers.

Specialist Dyslexia Support Tutors and the dyslexic HE students themselves also identified common timings of events during the academic year which they perceived were more likely to trigger incidences of cognitive immobilisation, such as exams or multiple submissions of assignments due on the same day. Such comments added strength to the hypothesis that the phenomenon, cognitive immobilisation exists and occurs more frequently with dyslexic HE students than with their non-dyslexic peers.

4.3.1 Incidence of cognitive immobilisation in dyslexic HE Students from the Survey

Of the 40 respondents, only one (2.5%) reported never experiencing 'freezing up' in an academic situation when he became so stressed and anxious he was unable to carry on working (e.g. in an exam, a seminar, giving a presentation or reaching a submission deadline), whereas 15 (37.5%) reported experiencing 'freezing up' frequently; 14 (35%) reported experiencing 'freezing up' several times and 10 (25%) reported experiencing 'freezing up' once or twice. No timeframe was stipulated in this question.

4.3.2 Incidence of cognitive immobilisation in dyslexic HE Students from the Specialist Dyslexia Support Tutors

All six tutors interviewed recognised the description of cognitive immobilisation and confirmed their opinions that dyslexic HE students experienced cognitive immobilisation more frequently than their non-dyslexic fellow students.

4.3.3 Incidence of cognitive immobilisation in dyslexic HE Students from the Participants

All 13 participants recognised the description of cognitive immobilisation and stated that they had experienced the phenomenon much more frequently than their peers during the previous academic year. All but one reported experiencing incidents of the phenomenon during the latter phase of this project. The single participant who did not experience any cognitive immobilisation during this project, had reported several incidences at the beginning of the academic year but none during the monitored phase. In order to standardise the frequency of reported incidences of cognitive immobilisation, the total number of incidences of cognitive immobilisation experienced by each participant was divided by the number of weeks they each reported. During this timeframe, 12 of the participants experienced cognitive immobilisation between 0.30 and 1.93 times per week reported on average (see Table 4.1 below).

Table 4.1 Frequency of incidences of cognitive immobilisation (CI) reported by participants

Participant	No. of reported Incidences of CI	No. of weeks reported	Frequency of reported incidences of CI
1 Angela	22	19	1.16
2 Alan	6	20	0.30
3 Carolyn	12	25	0.48
4 Diane	15	22	0.68
5 Lucy	10	21	0.48
6 Tom	0	20	0.00
7 Paula	27	14	1.93
8 Judy	17	23	0.74
9 Wendy	14	23	0.61
10 Pearl	18	21	0.86
11 Brian	23	24	0.96
12 Sarah	8	19	0.42
13 Les	12	9	1.33

Although these participants reported experiencing cognitive immobilisation, it should be noted that in some weeks participants experienced it more often, but not at all in other weeks. For example, **Paula** reported experiencing 27 incidences of cognitive immobilisation during the 14 weeks she completed her diary, whereas **Alan** only experienced cognitive immobilisation 6 times during 20 weeks of monitoring. However, **Paula** reported experiencing cognitive immobilisation 6 times during week ending 29.01.16 and not at all during the whole of March 2016. Details of each participant's experiences of cognitive immobilisation are shown individually in graph form and are also related to their fluctuations in self-image/self-esteem and anxiety/hopelessness levels in Appendix L, and some are also shown below associated with Research Question 2(b).

Although **Tom** did not experience cognitive immobilisation at all during this phase of the project, he reported 'freezing up' during his previous year of study:

"... even though I had been doing work, the closer it gets to the end of the semester when there are deadlines, that's when it starts to hit me. When I freeze up I just can't think ... can't concentrate... can't focus".

Alan experienced no incidences of cognitive immobilisation over the two-week Christmas break and none at all after 29/01.

Angela commented after admitting she had 'frozen up' because she was behind schedule with her assignment submissions,

"I froze up. My mind just went completely blank ... I was in the middle of writing a sentence ... Everything just went ... I couldn't get words out... I just walked away and left it... You want to throw yourself off a bridge because of people...then thought I'd throw them off. It's been on and off for a couple of weeks."

The week following this distressing period, **Angela** began attending a course of counselling sessions arranged with the University Counselling Service, having already mentioned previously that she had applied for this through the University Wellbeing Centre.

Carolyn stated

"I think I suffer much more anxiety and stress than the others on my course and I frequently 'freeze up' and can't work. In my ... [previous] year I had 3 months' study break because I was ill because of this."

She described an experience of cognitive immobilisation thus:

"I froze up and it was like my mind was on pause but my mouth was on fast forward. I didn't know what to think but what I was saying wasn't making any sense... so I was trying to explain something but my brain was going, 'I don't know what to say! I don't know what to say!'"

In response to the researcher's suggestion that she should apply for counselling, **Carolyn** dismissed it as "*more trouble than it's worth*" but declined to elaborate on her opinion.

Pearl described her experiences of cognitive immobilisation:

"I couldn't think, I couldn't focus or relax...I just couldn't. I felt like I was annoying people and I was, like, blocking up in my mind...I was freezing up. That week I didn't use anything...I kind of let it overtake me."

Paula, who recorded the highest frequency of cognitive immobilisation during this phase of the project (27 incidences of cognitive immobilisation reported over 14 weeks), failed 2 exams which she was informed she would have to re-sit before being allowed to continue onto her final year.

"I froze up when I was trying to revise, then I panicked and froze up in the exams."

Paula had also had assignment work deferred to her final year, due, she believed, to her experiencing frequent incidences of cognitive immobilisation. This was causing **Paula** much concern as it would put even more pressure on her during her final year. The effects of increasing anxiety levels on the frequency of incidences of cognitive immobilisation will be addressed in more detail below. **Paula** reported benefitting from attending a course of counselling sessions recommended by the researcher but declined to take up the 1:1 support which she had been offered. Nevertheless, **Paula** managed to complete her final year during the summer break.

4.3.4 Triggers for incidences of cognitive immobilisation from the Survey

Although the survey questionnaire did not ask specifically for respondents' individually perceived triggers leading to cognitive immobilisation, survey questions relating to stress levels and the effects of the dyslexia 'label' were included. Relevant information was also gathered in the two final 'open' questions requesting information on coping strategies employed to avoid cognitive immobilisation and any further comments respondents wished to make.

19 (47.5%) respondents considered that they suffered much more stress than their non-dyslexic fellow students; 19 (47.5%) considered they suffered slightly more stress and 2 (5%) considered they suffered about the same as their non-dyslexic fellow students. None of the respondents considered they suffered less stress than their non-dyslexic fellow students.

In order to test how likely the distribution of these data were to arise by chance, the Pearson's Chi-square Test for Independence was carried out using SPSS. This test measures how well the observed distribution of data fits with the

distribution that is expected, that is, it tests a null hypothesis if the variables are independent. The results below suggest that the variables Frequency of Incidence of Cognitive Immobilisation, Missed Submission and Stress Level are strongly dependent in the data from the survey sample (n=40), but that Study Break is not.

These results suggest that the associations were statistically significant as follows:

Frequency of incidence of cognitive immobilisation (CI)

$$\chi^2 = 12.20, df=3, p = 0.007$$

and

Stress Level $\chi^2 = 17.15, df=2, p < 0.000$

were both **highly significant ($p < 0.01$)**

Missed Submission $\chi^2 = 6.40, df=1, p = 0.011$

was **significant ($p < 0.05$)**

Study Break $\chi^2 = 0.10, df=1, p = 0.752$

was **not significant**.

This suggests that the frequency of incidences of cognitive immobilisation may be very significantly associated with respondents' perceived levels of academic stress, and significantly associated, to a lesser degree, with their likelihood of

missing submission dates. Surprisingly, from the data, there was found to be no significant association between the frequency of incidences of cognitive immobilisation and the likelihood of respondents taking a study break. These findings were reflected in the analysis of data gathered from the 13 participants during the latter part of the project, which also suggested that although heightened stress levels appeared to coincide with higher frequency of incidence of cognitive immobilisation, high levels of stress were not particularly associated with participants wanting to apply for a study break. Data from the participants are analysed in more detail later in this section.

When considering the possible effects of the 'dyslexic label' being applied to dyslexic HE students on the frequency of their incidences of cognitive immobilisation, the following data collected in the survey was considered: 9 (22.5%) respondents said their non-dyslexic fellow students knew they were dyslexic; 25 (62.5%) said only their close friends knew and 3 (7.5%) said their non-dyslexic fellow students did not know of their dyslexia. 3 (7.5%) respondents did not know whether others knew or not. 13 (32.5%) respondents stated that they preferred other students and lecturers NOT to know they were dyslexic; 16 (40%) indicated the opposite and 11 (27.5%) said they had not thought about it.

Again, the Chi-square test was applied to discover the likelihood of the variables, Frequency of the incidence of cognitive immobilisation, Non-dyslexic fellow students' knowing of the respondent's dyslexia and Respondents preferring other students and lecturers not knowing they were dyslexic, being independent of one another. The results below showed a strong association between Frequency of incidence of cognitive immobilisation and the extent to

which dyslexic HE students' fellow students were aware of their dyslexia, suggesting that the associations were statistically significant as follows:

Frequency of Incidence of Cognitive Immobilisation

$$\chi^2=13.20, df=3, p = 0.004$$

and

Fellow students know about your dyslexia

$$\chi^2=32.40, df=3, p = 0.000$$

were both highly statistically significant ($p<0.01$);

whereas

Prefer fellow students NOT to know about your dyslexia

$$\chi^2=0.950, df=2, p = 0.622$$

was shown not to be dependent on the other two variables.

These results suggest that the extent to which fellow students were aware of the respondents' dyslexia had a very strong association with the frequency dyslexic HE students experienced incidences of cognitive immobilisation, whereas their *preference* that others were not aware of their dyslexia appeared to have no influence on how frequently they experienced cognitive immobilisation.

From the non-mandatory, survey question 17 which invited respondents to add any further relevant comments, the most popular referred to the general lack of dyslexia awareness linked with the negative effects of having the 'dyslexia label'. Respondents' views on the lack of dyslexia awareness included

“Many of these coping strategies rely on sympathy and empathy from other students and staff. There seems to be a sense that dyslexia is understood as ‘words moving on a page’ and as this is such a reductive way of understanding the condition often leads to frustration and misunderstanding” (sic),

and

“I felt some of the comments in my feedback have been very personal...I spend a lot of time wishing I wasn’t dyslexic’.

Respondents’ references to the negative effects of being labelled as dyslexic included,

*“When I was 7, *** described me as having the cognitive ability to build an atom bomb and the reading age of a gnat = things have not changed much” (sic),*

and

“The questionnaire identifies a problem I can relate to. However, it is something we as dyslexics have to accept that the society we live in these issues won’t be changed or amended as non-dyslexics see any amends to study or exams as simply cheating” (sic).

These comments reflect those made by the participants of the latter part of the project during the recorded interviews/monitoring meetings.

4.3.5 Triggers for incidences of cognitive immobilisation from the Specialist Dyslexia Support Tutors

Only one of the six Specialist Dyslexia Support Tutors described supporting a student who had needed to take a study break during their academic course but all six confirmed supporting students who had missed submission deadlines, despite being encouraged to apply in advance for extensions routinely allowed for dyslexic students. All six tutors agreed that the usual triggers for such incidences of cognitive immobilisation were high levels of anxiety due to

pressure of academic work coupled in many cases with students' not wishing to 'attract the dyslexia label' by applying for extended submission dates. Three of the tutors also cited the stress of living away from home for the first time as contributing to the risk of cognitive immobilisation for dyslexic students at the University.

The Specialist Dyslexia Support Tutors were asked for their views on the previously mentioned result that 12 (30%) of the survey respondents reported missing a submission deadline because of experiencing 'freezing up' and 28 (70%) respondents reported that they had never missed a submission deadline for this reason. All six tutors explained this may be due to the fact that they all encouraged the students they supported to apply in advance for the extended submission dates offered to dyslexic students as a matter of course, while also encouraging them to plan and start work as soon as it was assigned. The tutors all agreed that this advice was not always well received and acted upon.

4.3.6 Triggers for incidences of cognitive immobilisation from the Participants

The 13 participants who completed the latter section of the project provided detailed descriptions of their individual incidences of cognitive immobilisation and logged the actual timings and duration of each during this phase. Their descriptions were recorded and transcribed verbatim, some of which appear below, while others appear within their individual profiles in Appendix L.

The most frequently reported triggers for incidences of cognitive immobilisation cited by the 13 participants can be grouped into three main areas: academic issues; links to negative connotations of having a 'label' of being dyslexic and personal/family issues. A summary of the most commonly cited triggers can be

seen below in Table 4.2. A comprehensive breakdown of triggers for cognitive immobilisation reported by the participants may be seen in Appendix H.

Table 4.2 Triggers for CI most frequently reported by participants

Trigger	Description	How many reported it
Academic Issues		
Pressure of academic work	Several pieces of work for different lecturers to be submitted at the same time	10
Misunderstanding of academic work	Not understanding what is being asked for in terms of assignments	6
Refused 1:1 support	Support was offered too late in the academic year / Participant considered it inappropriate...	6
IT issues	Broken laptops, library internet service, Microsoft updates making specialist software incompatible, therefore unusable	5
Procrastination	Putting off starting a piece of work until the last possible moment	5
How course is run	Participants find administration of course stressful	5
Asked for help	Participants unsuccessfully requested specific support/advice from course tutors	5
Feedback from academic tutors	Lack of/not helpful	5
Linked with Dyslexia 'label'		
History of need for, and provision of, support for dyslexia	Participants' issues linked with 'needing extra help'	10
Label (linked with bullying?)	Negative implications of having the 'label' of dyslexia	9
Treated differently from non-dyslexic students	Eg tutor's presentation on coloured slides which Participant could not read – attention drawn to the fact that 'dyslexics are different'	6
Personal/Family issues		
Participants' illness	Various ongoing health issues and cases of colds/flu	9
Personal issues (sometimes linked with illness?)	Participants affected by adverse personal circumstances	6
Tutors	Personal conflicts/dislike of tutors	5
Anger (linked to some or all of the above?)	Participants' anger escalated to trigger CI	5

(i) Academic issues

Most of the participants identified the stress of having several pieces of work for different lecturers to be submitted at the same time as being a significant contributing factor to their incidences of cognitive immobilisation during this project. For instance, **Sarah** experienced incidences of cognitive immobilisation when she had more than one assignments due for submission at the same time, as in week ending 08/04 when she also attended an interview (see Appendix L).

Participants also reported difficulties understanding what is required to successfully complete assignments, sometimes causing procrastination. **Lucy** blames her dyslexia for causing her habit of procrastination (Strohmeier et al, 2016), which she terms

“CBA...Can't Be Arsed Syndrome”.

Difficulties in arranging 1:1 specialist dyslexia support has added to these difficulties for some participants. However, there were also negative comments explaining why some participants have decided not attended such support sessions.

Lucy explained that she was offered one-to-one support (52 hours/year, suggesting significant need for support) with a Specialist Dyslexia Support Tutor when she first arrived at the University

“I tried it for a couple of hours – it was crap so I don't bother.”

Wendy did not attend 1:1 study skills support with a Specialist Dyslexia Support Tutor during the project, explaining that

“My last support tutor had a library book on dyslexia and she read bits out of it to me and she spent 2 weeks solid on referencing. I think I would have done much better if I’d had a support tutor with a scientific background.”

Although **Brian** attended 1:1 study skills support with a Specialist Dyslexia Support Tutor during this project, he adds that he feels attending this support

“...eats into time I want to use for my work. I have support but I have that many assignments I haven’t really got the time to go for the support.”

Further comments relating to academic work specifically mentioned unsuccessful requests for support or advice, as well as unhelpful feedback, from course tutors. Another significant trigger concerned IT issues such as broken laptops, breakdowns with the library internet service and Microsoft updates rendering specialist software incompatible and therefore unusable:

“I rely on my specialist software and it often does not work properly.”

(**Alan**);

“Dragon speaker working, then not working – very frustrating” (**Carolyn**);

“I’ve been to the IT Centre with my computer. I opened it the other day and it’s updated to Windows 10... now everything’s changed: My Dragon doesn’t work, Read and Write doesn’t work and the specialised software from DSA doesn’t work!” (**Brian**).

The technological issues reported above would seem to be easily remedied by the University IT Support department but other negative experiences, particularly relating to the provision of study skills support specifically for dyslexic HE students should raise cause for concern. Perhaps such negative experiences may suggest the need for a clearer protocol for dyslexic HE students wishing to draw attention to their problems.

(ii) Linked to the dyslexia 'label'

The most commonly cited trigger was having a history of need for, and provision of, support for their dyslexia, and the negative implications of having this 'label'. Participants felt they were treated differently from their non-dyslexic peers and sometimes bullied because of this.

Carolyn stated,

"I am 'labelled' as dyslexic and treated differently from the other students on my course. I have asked for more help from tutors but they are just going to send me a load of worksheets and stuff to help me structure everything. I feel bullied."

Angela also expressed continuing stress from being labelled as dyslexic:

"I have a history of need and provision, relating to my dyslexia and I find having this label very stressful."

Even though **Tom** did not record any instances of cognitive immobilisation during this project he admitted he was sensitive to the negative implications of his being "...labelled as being dyslexic" because of his history of needing support.

Judy said she had been very conscious of being 'labelled' as being dyslexic and felt angry that this affects her life so much.

Paula recalled a history of learning difficulties and felt that she has always been "...labelled as thick..." but was only identified as being dyslexic when she first came to the University two years ago.

Brian felt he has always been treated differently from his non-dyslexic peers, suffered bullying and has experienced personal conflicts with some of his tutors.

He said he hates to have the 'label' of dyslexia and has been told he "...won't do well" because of it, which makes him very angry. He commented on his perception of how others see him thus:

"You should not be dyslexic and expect to take a place at university. Even if you are not harming anyone else your presents [sic] here just offends everyone else."

Such comments from dyslexic HE students echo those of Freire (1996, 45) who believed that

"Self-depreciation is another characteristic of the oppressed, which derives from their internalization of the opinion the oppressors hold of them. So often do they hear that they are good for nothing, know nothing and are incapable of learning anything – that they are sick, lazy, and unproductive – that in the end they become convinced of their own unfitness."

Freire's statement refers very accurately to the feelings of inferiority and worthlessness many dyslexic HE students, including the participants in this project, have expressed when describing how they feel about being 'labelled' as dyslexic.

Some students and most of the lecturers on **Lucy's** course knew she was dyslexic, however she insisted, "*I prefer people not to know I am dyslexic because it is my business*". She did not work with any of her fellow students, describing them as "*cliquey*".

Some participants reported being treated differently from their non-dyslexic peers because written work produced by dyslexic students is usually marked for content rather than being penalised for spelling mistakes. Some dyslexic HE students reported receiving negative comments relating to this. **Lucy** was told,

“...ok it’s marked like this but in work you won’t get on very well because you can’t spell correctly... You can get on without spelling in the real world, love – work at Costas”.

Some participants believed they worked much harder than their peers but still did not always produce their best. **Carolyn** stated,

“I hate being told that I have done better and that I’ll get better with time, especially when there were people there who hadn’t written essays in years and they were scoring really high marks and I know I shouldn’t correspond myself to other people because it’s not the same, but you can’t help it and I can’t help it and I was really frustrated”

Wendy also felt she has been treated differently from her non-dyslexic peers and this has caused her much distress and anger,

“When they get good marks and they did it the day before and I’ve worked on something for 2 weeks and they get better marks than me, that’s not very nice.” (sic)

Remarking on receiving unhelpful feedback from tutors, often triggering cognitive immobilisation, **Lucy** recalled receiving these comments:

“... ‘Why is this there? This is not needed. Spelling mistake. You need this. This is wrong.’ Literally for... like... 4 pages and then it says good attempt ... Thanks, just a good attempt – That was... like... 2 or 3 days of proper hard work but he just ripped it to shreds - not one positive comment – that ‘this was done well but you could have improved it by doing this.’...”

Referring to some written feedback from a tutor who was aware of her dyslexia,

Wendy commented:

“She marked it and commented on all my spelling...I looked in the speech bubbles and it said spell, spell, spell...I could not physically read this at the moment ‘cos I got so angry with her.”

Comments such as those above suggest a need for increased general awareness of the characteristics and effective support for dyslexia in teaching staff, particularly for students in HE.

(iii) Personal/family issues

Most of the participants describe suffering various ongoing health issues and frequently experience minor accidents and bouts of cold/flu. Their comments include:

Angela– *“I suffer a lot with depression and personal issues linked to this illness”*

Judy reported often suffering illness which she also links to family and personal issues. She admitted to fainting in extreme cases of anxiety for which she has sought medical assistance.

Some participants attributed these illnesses in part to their personal circumstances and/or family disagreements when they go home or when their family members visit them at the University. **Wendy** reported suffering frequently from illness:

“Like... when I get really anxious I get a bad pain in my side and it’s almost like...someone stabbed me, so I... like... panic a bit”,

which she believed was exacerbated by family and personal issues, as well as her unsuccessful attempts to separate social & academic stress. She was encouraged to consult her GP.

Five participants cited their escalating anger as a significant trigger for their experiencing cognitive immobilisation. **Carolyn** recognised her experiences of ‘good days and bad days’ as relating to her dyslexia:

"I have 'bad days' and then I get angry. Situations and people make me angry and I lose control."

Brian did not like the way his course was run and regretted investing his money in it:

"I'm going to make the most expensive mistake of my life. I don't even feel I'm in the same race as I'm disadvantaged whatever way I look at it, and the only way to escape it is to do your own thing."

Brian has suffered ongoing illnesses, for which he has been hospitalised several times during the project, which he considered were exacerbated by stress in his paid employment, as well as family and personal issues.

Three of the participants identified their awareness of being unable to find an acceptable balance between their social and academic lives as exacerbating their frequent cognitive immobilisation.

4.4 Discussion - Research Question 1

Although no time scale was imposed on the survey respondents' reporting of frequency of incidences of cognitive immobilisation, they all recognised the phenomenon. All but one of the 40 respondents confirmed that they had experienced cognitive immobilisation in an academic situation, adding that they all considered they experienced cognitive immobilisation more frequently, albeit by a varying degree, than their non-dyslexic fellow students. This opinion was confirmed by all six Specialist Dyslexia Support Tutors. Findings from this inquiry may be interpreted to support the existence of cognitive immobilisation through the general consensus of descriptions given by survey respondents, research participants and Specialist Dyslexia Support Tutors. Although the effects of cognitive load/cognitive overload have previously been examined

(Kirschner, 2002; Kirschner et al. 2011; Ayres and Paas, 2012; Cocks et al., 2013), this project is the first inquiry to explore the physical and psychological presentation of cognitive immobilisation, which has been suggested as the next stage (Scott, 2004) when individual critical cognitive overload levels are reached by dyslexic HE students. Similar triggers for cognitive immobilisation were frequently identified by several individuals reporting that they had experienced 'freezing up' while trying to complete academic requirements for their various courses at the University.

From the dyslexic survey respondents, the decision to take a study break was not significantly associated with their reported frequency of experiencing cognitive immobilisation and data from the 13 participants in the latter part of this project agreed with this finding. However, the survey respondents' reported stress levels and their having missed submission dates were strongly associated with their frequency of experiencing cognitive immobilisation. Data gathered from the 13 participants during the latter part of the project also agreed with these findings that high levels of stress alone were not associated with participants taking a study break, but the incidence of cognitive immobilisation increased with higher levels of stress. These findings, albeit from a small-scale project, appear to provide hitherto unsought links worthy of further inquiry and suggest possible translation into authentic solutions at the practitioner level.

Interestingly, whether fellow students and lecturers were aware that a student was dyslexic or not, appeared to have some bearing on their frequency of experiencing cognitive immobilisation for some, not all, dyslexic HE students, depending on students' individual attitudes to possible negative connotations of having a dyslexia 'label'. **Judy** suggested,

"I'm going to get to the end of the year and I'll say I'm dyslexic and my tutor will go, 'really?'"

This agrees with the notion that the dyslexia label may be interpreted in a variety of ways, both by the dyslexic student (Cameron and Billington, 2015; Pollak, 2005) and by others (Macdonald, 2009; Goodley and Lawthom, 2006; Alexander-Passe, 2015; Hodkinson, 2016), authenticating aspects of the sociological context within which dyslexia appears to be viewed. There was a strong association with the frequency of incidences of cognitive immobilisation when other students and lecturers were aware of survey respondents' dyslexia, suggesting negative connotations of the application of the 'label' to the dyslexic student. Although some dyslexic HE students reported not minding others knowing they were dyslexic, this attitude did not always prevent them from feeling too embarrassed to ask for help or accepting specialist support, due to their perceptions of others' attitudes (Cameron and Nunkoosing, 2012; Denhart, 2008). This familiar embarrassment is evidenced throughout the comments reported by many of the participants during the regular interviews/monitoring meetings.

Often dyslexic individuals' embarrassment extends into their social interactions (Hellendoorn and Ruijsenaars 2000) and socially produced effects of dyslexia are considered by dyslexic HE students to be no less valid than those produced by its physiological aspects (Hacking, 2004; Cameron, 2016). Several participants admit to having difficulties following conversations between several people in a social setting, due they assume to their slow processing skill, which effectively prevents them from joining in for fear of 'saying the wrong thing' and causing them further embarrassment. This barrier resulting from their being unable to process all the incoming stimuli from the ongoing conversation

exacerbates the dyslexic HE student's lack of self-confidence and possibly encourages their withdrawal from the social events which form part of university life.

Wendy ascribed her lack of self-confidence in social settings for the most part to her being dyslexic:

"Nobody thinks about your personal life – they just think you've got work to do and that's it. Everything's going wrong it seems to me."

Les has also described feelings of being excluded due, he believed, to his dyslexia:

"I have no friends on the course...no matter how I tried they never wanted to involve me in anything...it was awful..."

In some cases, within social settings, it may be possible that a dyslexic HE student has formed inaccurate views of an interpersonal relationship or an event, due to cognitive distortion (Beck, 1995; Sirin, 2017), which refers to the student's misinterpretation of an event. Such mistaken perceptions could possibly be due to negative historical views of themselves, reinforced repeatedly in connection with their dyslexia 'label' throughout their academic career.

It should be noted that not all dyslexic students are adversely affected by a diagnosis of dyslexic. **Sarah** was screened at 13 years of age for dyslexia and expressed her relief at being identified as being dyslexic at 16 years:

"I was quite happy when I found out I was dyslexic 'cos I was...like... Oh great, I'm not stupid, this is the reason I'm not doing very well in exams."

Sarah was currently attending 1:1 study skills support with a Specialist Dyslexia Support Tutor.

4.5 Research Question 2(a)

What relationships appear to exist between the incidence of cognitive immobilisation and memory and learning?

The Test of Memory and Learning-2 (TOMAL-2) was introduced in the previous Methodology chapter and a detailed description of the 16 individual subtests is given in Table 3.2. Further analysis of the Standard Scores achieved for these subtests is obtained by combining various subtest scores to calculate nine Composite Indexes. Composite scores are considered to be more reliable in assessing overall memory function, based on a profile of strengths and weaknesses, than individual subtests. Discrepancies between index scores permit psychometric contrasts to be identified. Each index core is based on the sum of the subtest scores that comprise the index. Table 4.3 below shows how the subtest scores are combined to calculate Composite Indexes.

Table 4.3 TOMAL-2: How subtest scores are combined to calculate Composite Indexes

Composite Index	Subtests
Verbal Memory Index (VMI)	Memory for Stories (MFS) Word Selective Reminding (WSR) Object Recall (OR) Paired Recall (PR)
Nonverbal Memory Index (NMI)	Facial Memory (FM) Abstract Visual Memory (AVM) Visual Sequential Memory (VSM) Memory for Location (MFL)
Composite Memory Index (CMI)	Memory for Stories (MFS) Word Selective Reminding (WSR) Object Recall (OR) Paired Recall (PR) Facial Memory (FM) Abstract Visual Memory (AVM) Visual Sequential Memory (VSM) Memory for Location (MFL)

Verbal Delayed Recall Index (VDRI)	Memory for Stories Delayed (MFSD) Word Selective Reminding Delayed (WSRD)
Attention/Concentration Index (ACI)	Digits Forward (DF) Letters Forward (LF) Manual Imitation (MI) Digits Backward (DB) Letters Backward (LB)
Sequential Recall Index (SRI)	Visual Sequential Memory (VSM) Digits Forward (D) Letters Forward (LF) Manual Imitation (MI)
Free Recall Index (FRI)	Facial Memory (FM) Abstract Visual Memory (AVM) Memory for Location (MFL)
Associative Recall Index (ARI)	Memory for Stories (MFS) Paired Recall (PR)
Learning Index (LI)	Word Selective Reminding (WSR) Object Recall (OR) Paired Recall (PR) Visual Selective Reminding (VSR)

The assessment results are expressed as Standard Scores (SS), which relate an individual to his or her contemporaries in a standard way that always means the same thing at any age. Average Standard Scores fall between 90 and 110 and represent the middle 50% of the population at the particular age. 100 is the mid-point of the average range. A Standard Score of below 85 is taken to indicate the need for intervention support within that area.

Only the Attention/Concentration Index (ACI) is currently used in the diagnostic assessment for dyslexia, since it is generally accepted that difficulties in this area commonly indicate dyslexia, and the result informs part of the recommendations for support/assessment of needs in connection with the DSA

(Disabled Student Allowance) award from Student Finance England. As can be seen from the results shown in Table 4.3 below, 8 of the 13 participants scored below average for the Attention/Concentration Index (ACI). However, attention should be drawn to observations set out in section 3.7.3 (i) relating to conditions considered likely to result in scores reflecting inaccurate (usually higher) ability levels in individuals who identified their use of strategies to enhance their performance.

Having such a detailed profile for each participant, showing their individual areas of strength and weakness when undertaking a wide variety of verbal and non-verbal tests of memory, may provide an invaluable guide to the best strategies for the individual to apply successfully to their academic studies. Such a profile could therefore be used to good effect to influence the nature of individual intervention support in the areas of memory skills. The focus of each subtest was described in detail in Chapter 3, section 3.5. Standard Scores for each participant for the nine TOMAL-2 indexes are given in Table 4.4 below:

Table 4.4 Frequency of reported cognitive immobilisation (CI) related to Standard Scores for all TOMAL-2 Composite Indexes

Participant	1	2	3	4	5	6	7	8	9	10	11	12	13
Frequency of CI (incidences per week reported)	1.16	0.30	0.48	0.68	0.48	0.00	1.93	0.74	0.61	0.86	0.96	0.42	1.33
SS VMI	70	119	109	109	105	102	65	124	97	104	104	109	75
SS NVI	69	111	73	92	104	97	78	120	80	109	90	101	66
SS CMI	65	117	89	100	105	99	67	125	87	107	96	105	66
SS VDRI	86	121	96	92	118	73	70	128	99	99	80	118	60
SS ACI	77	97	86	84	84	77	78	103	74	90	77	91	82
SS SRI	79	110	76	91	84	69	79	110	66	105	83	96	83
SS FRI	66	105	79	90	105	108	74	121	90	103	90	97	66
SS ARI	65	121	118	103	112	86	80	112	100	86	109	106	74
SS LI	73	120	111	116	105	107	77	132	102	102	105	105	61

KEY

Standard Score (SS)	Descriptor	
131 & above	Well Above Average	
116 – 130	Above Average	
111 – 115	High Average	
90 – 110	Average	
85 – 89	Low Average	
70 – 84	Below Average	
69 & below	Well Below Average	

Key to participants' pseudonyms			
1	Angela	8	Judy
2	Alan	9	Wendy
3	Carolyn	10	Pearl
4	Diane	11	Brian
5	Lucy	12	Sarah
6	Tom	13	Les
7	Paula		

Table 4.4 Frequency of reported cognitive immobilisation (CI) related to Standard Scores for all TOMAL-2 Composite Indexes

Participant	1	2	3	4	5	6	7	8	9	10	11	12	13
Frequency of CI (incidences per week reported)	1.16	0.30	0.48	0.68	0.48	0.00	1.93	0.74	0.61	0.86	0.96	0.42	1.33
SS VMI	70	119	109	109	105	102	65	124	97	104	104	109	75
SS NVI	69	111	73	92	104	97	78	120	80	109	90	101	66
SS CMI	65	117	89	100	105	99	67	125	87	107	96	105	66
SS VDRI	86	121	96	92	118	73	70	128	99	99	80	118	60
SS ACI	77	97	86	84	84	77	78	103	74	90	77	91	82
SS SRI	79	110	76	91	84	69	79	110	66	105	83	96	83
SS FRI	66	105	79	90	105	108	74	121	90	103	90	97	66
SS ARI	65	121	118	103	112	86	80	112	100	86	109	106	74
SS LI	73	120	111	116	105	107	77	132	102	102	105	105	61

These results demonstrate that the participants **Angela, Paula** and **Les** who reported the highest frequencies of cognitive immobilisation had predominantly below average/well below average scores for all nine of the TOMAL-2 Composite Indexes. In order to investigate these results in more detail, further statistical analysis was undertaken.

4.5.1 Statistical Analysis of TOMAL-2 scores in relation to frequency of incidence of cognitive immobilisation

From SPSS, the Spearman rank correlation coefficient, a nonparametric measure of rank correlation, was used to assess the strength of the relationships between the Frequency of Incidence of cognitive immobilisation and the ordinal scores for each of the nine Composite Indexes of from the TOMAL-2 assessment undertaken by the participants (n=13), using a monotonic function. The following significant correlations with frequency of incidence of cognitive immobilisation (CI) were found:

FRI $r_s = -.734$, $N=13$, **$p=0.004$**

LI $r_s = -.690$, $N=13$, **$p=0.009$**

which suggest the correlations of Free Recall Index (FRI) with Frequency of Incidence of cognitive immobilisation and Learning Index (LI) with Frequency of Incidence of (CI) were both **highly significant ($p<0.01$)**;

VMI $r_s = -.651$, $N=13$, **$p=0.016$**

NMI $r_s = -.575$, $N=13$, **$p=0.040$**

CMI $r_s = -.607$, $N=13$, **$p=0.028$**

VDRI $r_s = -.556$, $N=13$, $p=0.049$

ARI $r_s = -.644$, $N=13$, $p=0.017$

These results suggest the correlations between the Frequency of Incidence of CI and each of VMI, NMI, CMI, VDMI and ARI are all **significant ($p < 0.05$)**;

ACI $r_s = -.392$, $N=13$, $p=0.185$

SRI $r_s = -.157$, $N=13$, $p=0.607$

but the correlations between ACI and Frequency of Incidence of CI, and SRI and Frequency of Incidence of CI were **not significant**. It should be noted that ACI and SRI both share 3 common subtest scores, namely Digits Forward (DF), Letters Forward (LF) and Manual Imitation (MI) which measure aspects of sequential memory (see Table 3.2 and Table 4.4).

The significant correlations identified in these data imply a relationship between these variables. Such a relationship has not been previously highlighted in the literature and therefore this offers an original finding which may be worthy of further investigation. The implications of the possibility of identifying dyslexic HE students with similar profiles, especially at the beginning of their university careers, would facilitate tailoring their support intervention programmes to avoid or minimise their likelihood of experiencing cognitive immobilisation. However, care needs to be taken as, although a correlation indicates a relationship, further investigation is needed to capture the nature of this relationship.

From the significant correlations suggested above, there would appear to be more valuable information pertaining to efficient intervention to be gleaned from a full assessment covering all 9 indices of the TOMAL-2 tests, particularly the

Free Recall Index (FRI) and the Learning Index (LI), both of which revealed highly significant correlations with Frequency of Incidence of CI ($p < 0.01$).

As previously mentioned, only the Attention/Concentration Index (ACI) is currently used for diagnostic and needs assessment purposes for dyslexic HE students. These results suggest that Frequency of Incidence of CI may be reduced by implementing specialist dyslexia support specifically targeted towards the areas of memory appearing weakest in the dyslexic HE student's TOMAL-2 profile, especially if those weaknesses are associated with any of the following areas: Facial Memory (FM), Abstract Visual Memory (AVM), Memory for Location (MFL), Word Selective Reminding (WSR), Object Recall (OR), Paired Recall (PR) or Visual Selective Reminding (VSR), relating to the relevant subtests.

Attention is again drawn to the accuracy of the scores achieved by the participants for the subtests of the Attention/Concentration Index for the reasons previously outlined. The performances in the very short tasks (2-3 minutes each) undertaken in one-to-one test conditions is unlikely to be reflected in the completion of extended practical tasks needed for HE work, such as reading and comprehending long texts; listening with distracting background noise and attempting to take meaningful notes during an illustrated lecture. Any strategy used during the subtest tasks, such as rehearsal or visualisation of test material, used to enhance an individual's performance in these (or indeed, any) subtests is unlikely to be effective over a longer period.

Observations recorded during the TOMAL-2 assessments included the use of visualisation in attempting the subtests relating to working memory, Digits Backward (DB) and Letters Backward (LB), whether successful or not, for

Carolyn, Tom, Paula and Pearl. Rehearsal of Digits Forward (DF) and Letters Forward (LF) was reported by Les.

4.5.2 TOMAL-2 profiles

Applying this hypothesis to the comments recorded during monitoring interviews with the participants when the results of the TOMAL-2 assessments were discussed, it became clear that those participants who reported the highest frequencies of incidences of cognitive immobilisation (CI) also presented with profiles scoring Standard Scores of well below average (below 70) and below average (70 – 84) for FRI and LI.

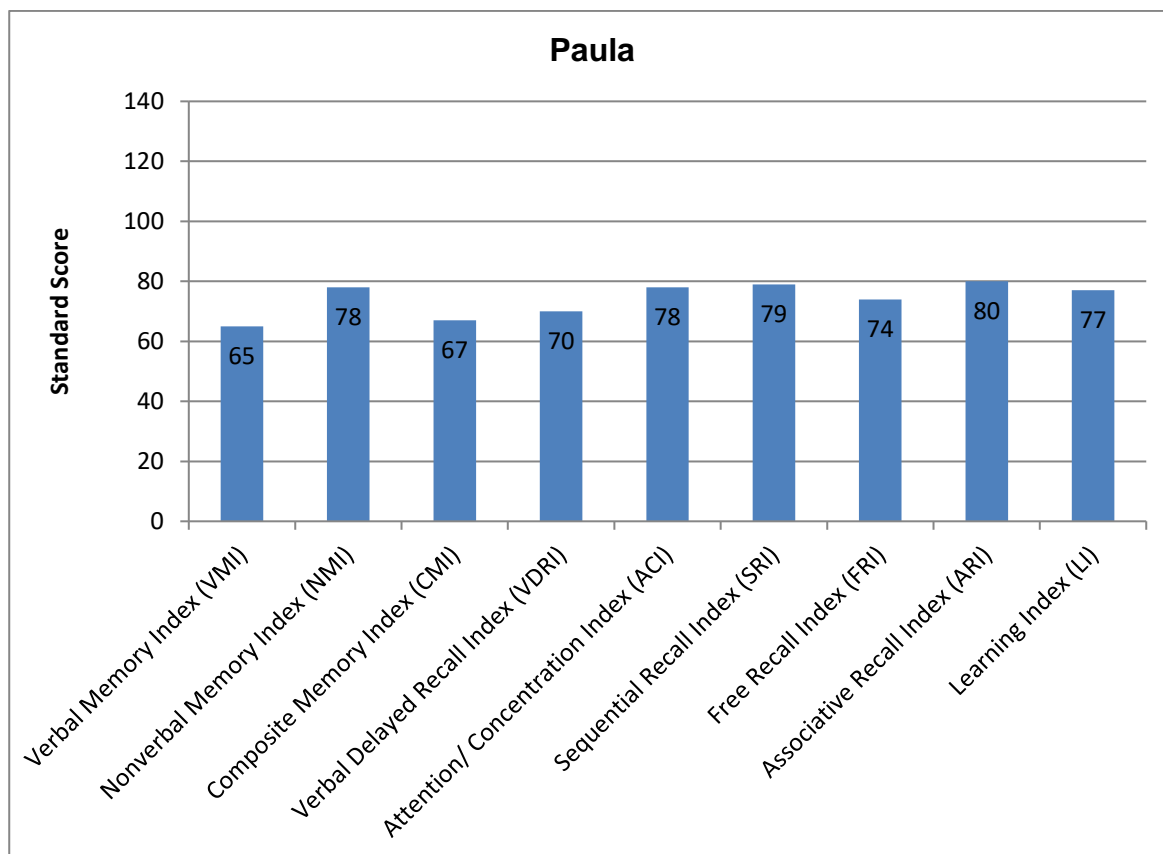
On further examination of the complete TOMAL-2 profiles for the three participants, **Paula, Les and Angela** whose Standard Scores for FRI and LI were both below average (70 – 84) / well below average (below 70), it can be seen below that their Standard Scores for the other TOMAL-2 Indices were all of a similar order. Although **Carolyn's** Standard Score for FRI was within the below average range, she recorded a frequency of 0.48 incidences of CI per week reported, suggesting further investigation of her TOMAL-2 profile.

It should be remembered that any **Standard Score below 85** signifies intervention support to be appropriate for the individual.

4.5.3 Paula

Of the 13 participants, **Paula recorded the highest frequency of 1.93 incidences of CI per week.** Paula was a 21-year-old female, full-time, third year, undergraduate student who was identified as being dyslexic at 18 years in her first year at the University. Although she was offered one-to-one support with a Specialist Dyslexia Support Tutor, this provision has still not been organised, so she does not currently have support. She was also awarded the services of a notetaker during lectures, but one has yet to be assigned to her. She was therefore signposted, by the researcher, to enquire about this at the University Wellbeing Centre. Her friends and tutors on her course knew she was dyslexic and she did not mind if people knew this.

Figure 4.1 TOMAL-2 Profile for Paula



KEY

Standard Score	Descriptor
131 & above	Well Above Average
116 – 130	Above Average
111 – 115	High Average
90 – 110	Average
85 – 89	Low Average
70 – 84	Below Average NMI, VDRI, ACI, SRI, FRI, ARI, LI
69 & below	Well Below Average VMI, CMI

4.5.4 Les

Les recorded a frequency of 1.33 incidences of CI per week

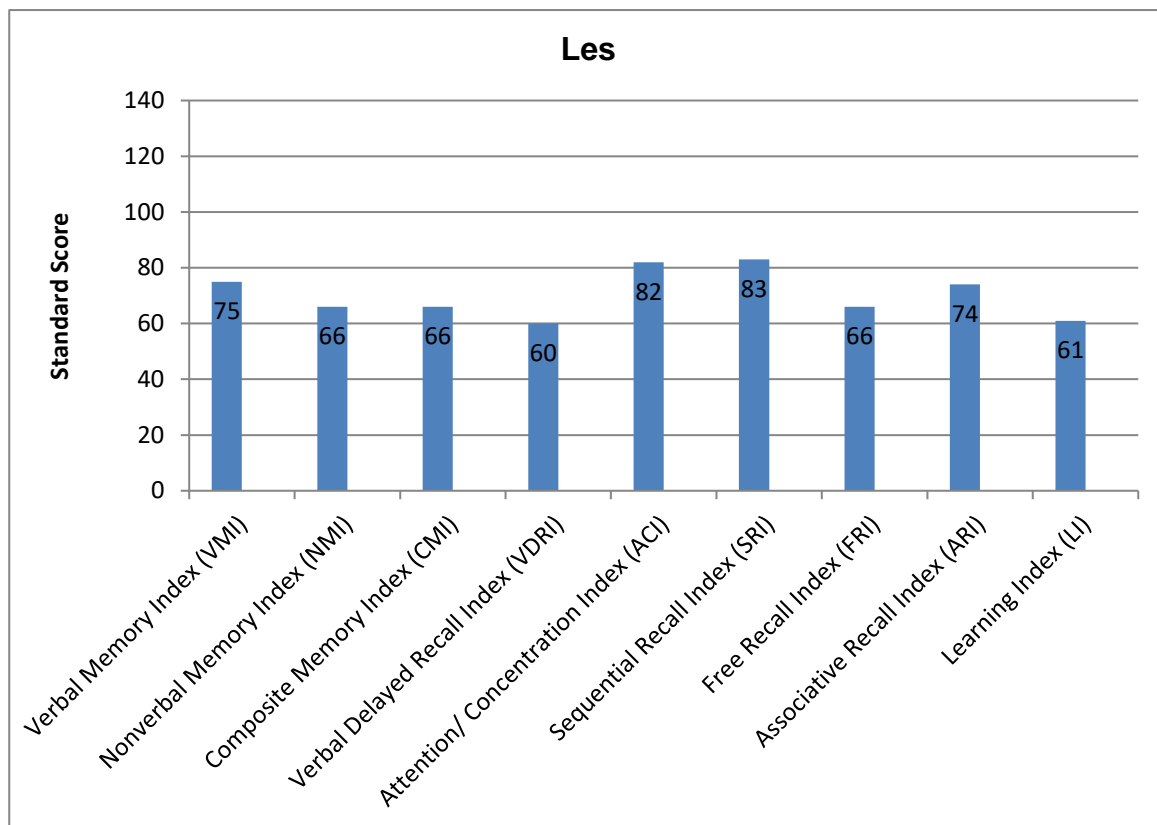
Les was a 28-year-old male, full-time, third year, undergraduate student who was identified as being dyslexic at 24 years. His one-to-one study skills support

sessions with a Specialist Dyslexia Support Tutor were delayed as his funding was held up due to application anomalies. Some academic tutors and some of the other students on his course were aware he was dyslexic and it did not bother him that they knew, although he added,

“I am the only one on the course where English is my first language, so it is difficult getting your message through...”

He detected a lack of dyslexia awareness among tutors.

Figure 4.2 TOMAL-2 Profile for Les



KEY

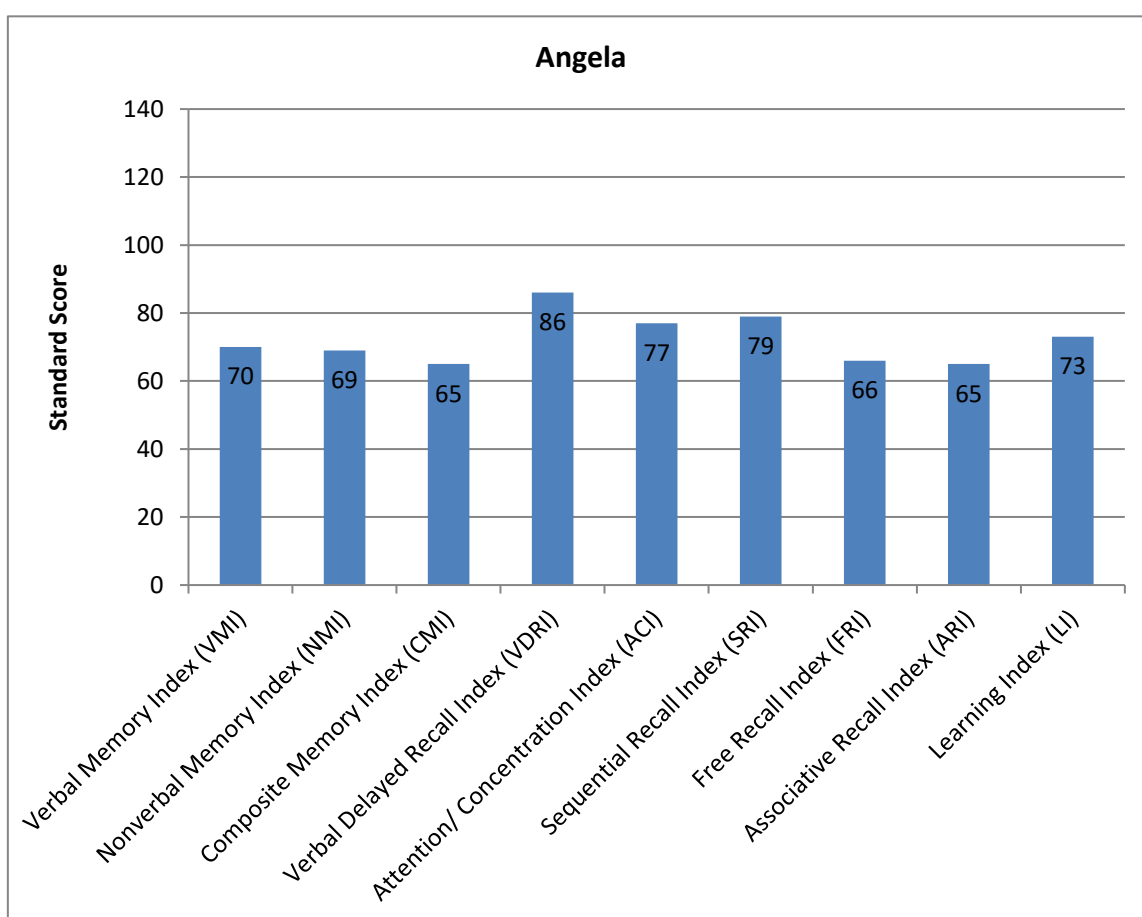
Standard Score	Descriptor
131 & above	Well Above Average
116 – 130	Above Average
111 – 115	High Average
90 – 110	Average
85 – 89	Low Average
70 – 84	Below Average VMI, ACI, SRI, ARI
69 & below	Well Below Average NMI, CMI, VDRI, FRI, LI

4.5.5 Angela

Angela recorded a frequency of 1.16 incidences of CI per week.

Angela was a 33-year-old female, full-time, first year, undergraduate student who was identified as being dyslexic at 16 years, consequently having some support at college. She was currently pleased with her one-to-one support with a Specialist Dyslexia Support Tutor. Her tutors and friends on her course were aware she was dyslexic and she was happy with this.

Figure 4.3 TOMAL-2 Profile for Angela



KEY

Standard Score	Descriptor
131 & above	Well Above Average
116 – 130	Above Average
111 – 115	High Average
90 – 110	Average
85 – 89	Low Average
70 – 84	Below Average
69 & below	Well Below Average

4.5.6 Carolyn

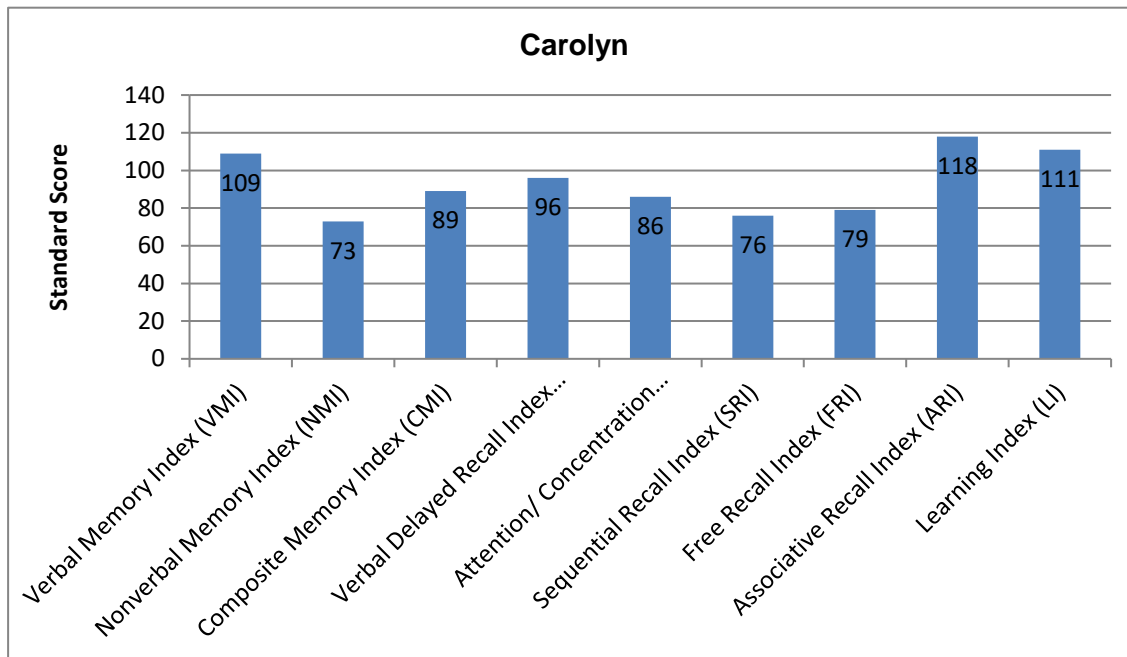
Carolyn was a 24-year-old female, part-time, postgraduate student who was identified as being dyslexic at 16 years. She was offered one-to-one support with a Specialist Support Tutor at the University. However, since she had some support at college before coming to university and did not find it useful, she had not accepted the 1:1 support offered here. She told all her tutors and fellow students on her course that she was dyslexic.

“I would rather they knew - but I don’t think they take any account of it.”

Although **Carolyn**’s Standard Score for FRI was within the below average range and she **recorded a frequency of 0.48 incidences of CI per week reported**, her complete TOMAL-2 profile below shows her Standard Score for LI fell within the high average, with ARI within the above average range, together with average range scores for VMI and VDRI.

All these higher Standard Scores within this profile illustrate the likelihood that these aspects of her memory system served to bootstrap any adverse effects of her related weaknesses. This may explain **Carolyn**’s lower reported frequency of CI compared with those of **Angela, Paula** and **Les**, despite her below average Standard Score for FRI.

Figure 4.4 TOMAL-2 Profile for Carolyn



KEY

Standard Score	Descriptor
131 & above	Well Above Average
116 – 130	Above Average ARI
111 – 115	High Average LI
90 – 110	Average VMI, VDRI
85 – 89	Low Average CMI, ACI
70 – 84	Below Average NMI, FRI, SRI
69 & below	Well Below Average

4.6 Discussion - Research Question 2(a)

Emerging patterns from analysis of the TOMAL-2 data would suggest that participants who reported the highest frequencies of incidences of CI also presented with profiles with Standard Scores of well below average (below 70) and below average (70 – 84) for FRI and LI. On further examination of the complete TOMAL-2 profiles for the three participants who reported the highest Frequencies of Incidences of CI within the sample, they also registered similarly

low Standard Scores for all the other TOMAL-2 Indexes. The uncertainty associated with the accuracy of the ACI subtest scores in representing performance in these areas, particularly for aspects of working memory, has been explored previously. With regard to the use of strategies to enhance performance in any of the TOMAL-2 subtest tasks, dyslexic students have often developed such strategies by the time they begin their HE course, although they may or may not be aware they have done so, or even that they are in use. However, the very fact that some participants confirmed they were able to enhance their performance in their completion of some subtests would suggest the actual quantitative results may not be considered as strictly accurate. Nevertheless, this inquiry was based on the study of individual profiles and trends revealed during the project, rather than relying solely on 'snapshot' numerical data, albeit data obtained using tests currently accepted for the diagnosis of dyslexia in HE students.

Since this project was conducted on a small-scale at one UK University, by one researcher, it is acknowledged that the data was gathered from a small number of participants and as such cannot be generalised for the dyslexic HE student population. However, these findings suggest emerging patterns which warrant further investigation with a larger sample. Further research may discover ways to enhance the preferred learning styles of dyslexic HE students, using the more detailed TOMAL-2 profile used in this project.

For instance, **Carolyn** showed strength in her verbal memory which is likely to have supported aspects of her below average nonverbal memory; this knowledge could be used to **Carolyn's** advantage within the learning styles adopted within the delivery of her dyslexia support intervention programme.

During discussions with participants regarding their individual TOMAL-2 profiles, some revealed they felt they learned better in ways suggested by the strengths revealed in their profiles but had not taken action on these ideas in the past.

Paula commented,

“I’ve always thought I was a visual learner, but I never thought to sort of stick to it because I didn’t realise it was a proper strength of mine”.

She added that she intended to try mind mapping when she plans any written work in future. **Brian** agreed he needed a lot of repetition to remember things.

Within the results shown in Table 4.4, it appeared that some of the participants with higher VDRI (Verbal Delayed Recall Index) Standard Scores reported the lowest frequencies of incidences of cognitive immobilisation.

Alan VDRI Standard Score =**121**, Frequency of CI = **0.30**

Lucy VDRI Standard Score =**118**, Frequency of CI = **0.48**

Judy VDRI Standard Score =**128**, Frequency of CI = **0.74**

Sarah VDRI Standard Score =**118**, Frequency of CI = **0.42**

This may possibly suggest slower memory decay could be linked to a decreased tendency to experience cognitive immobilisation (CI). Again, this may only suggest further research with a much larger sample to establish any valid link.

As previously indicated, only ACI (Attention/Concentration Index) is currently used in the diagnostic assessment for dyslexia, since it is generally accepted that difficulties in this area commonly indicate dyslexia, and the result informs part of the recommendations for support/assessment of needs in connection

with the DSA (Disabled Student Allowance) award from Student Finance England. ACI is composed of the five subtest scores for Digits Forward (DF) and Letters Forward (LF) which assess short term, sequential auditory memory; Digits Backward (DB) and Letters Backward (LB) which assess auditory working memory and Manual Imitation (MI) which assesses psychomotor visual sequential memory. These subtest assessments only address limited aspects of the memory system and as they are used as the basis for individual intervention, it is suggested that by using the full TOMAL-2 battery of tests a much more robust basis for support would be available to the Specialist Dyslexia Support Tutors.

4.7 Research Question 2(b)

What relationships appear to exist between the incidence of cognitive immobilisation and emotional status in terms of

- **self-esteem/self-image?**
- **anxiety?**
- **hopelessness (feelings about the future, loss of motivation and expectations; learned helplessness)?**

Detailed descriptions of the diagnostic assessments The Self Image Profile for Adults (SIP-AD), The Beck Anxiety Inventory (BAI) and The Beck Hopelessness Scale (BHS), which were used throughout this phase of the project, were given in the previous chapter.

4.7.1 Defining the terms

Unfortunately, there appear to have existed many definitions relating to self and the interchangeability of descriptive terms has led to such as self-esteem and self-image being used synonymously. However, Butler and Gasson (2004,1) defined self-esteem as relating to "...an evaluative aspect of self" and self-

image as relating to "...descriptive characteristic available to an individual in defining self" in the examiner's manual of their assessment SIP-AD which was used in this research project. Self-esteem is defined within the assessment as being a measure of the discrepancy between the scores of 'where I think I am now' and 'where I would like to be', on the same scale. This means that the highest measure of self-esteem would score 0 on the scale, as a higher score is equivalent to a lower level of self-esteem, since it represents a larger discrepancy between the scores of 'where I think I am now' and 'where I would like to be'. Burden (2005, 6) defined our self-image in terms of

"...the set of beliefs that we hold about various aspect of ourselves, how we look, how we get on with others, how good we are at various aspects of (school) work and so on".

Burden then defined self-esteem in terms of our evaluation of how important these beliefs are to us. Burden's definitions appear to mirror the significance of the discrepancy between the two notions, as defined by Butler and Gasson (2004) and Lawrence (2006). Pollak (2005, 33) agrees with Lawrence's (1996) more simple suggestion that "...self-esteem is a measure of how far self-image matches the ideal self"; that is, self-esteem is a subjective, often emotional judgement of one's own worth (Sousa, 2016).

Beck and Steer (1993a,1), the authors of the BAI assessment used within this inquiry, state that although measurements of anxiety and depression are highly correlated, "The BAI was constructed to measure symptoms of anxiety which are minimally shared with those of depression". Since the assessment form for BAI is also designed for self-reporting (and was used in this way during this research project) it is assumed that the symptoms on the form relate directly to the characteristics of anxiety. The symptoms of anxiety are rated on a 4 point scale from '*not at all*', '*mildly*' and '*moderately*' to '*severely*' and included 21

items: *'numbness or tingling', 'feeling hot', 'wobbliness in legs', 'unable to relax', 'fear of the worst happening', 'dizzy or lightheaded', 'heart pounding or racing', 'unsteady', 'terrified', 'nervous', 'feelings of choking', 'hands trembling', 'shaky', 'fear of losing control', 'difficulty breathing', 'fear of dying', 'scared', 'indigestion or discomfort in abdomen', 'faint', 'face flushed', and 'sweating (not due to heat)'*. A copy of the self-reporting form can be found in Appendix E.

It should be noted that

“...the BAI is not significantly related to hopelessness as measured by the BHS; the BHS measures negative attitudes about the future, which are consistent with depression but not with anxiety” (Beck and Steer, 1993a:14).

Hopelessness is defined as an arrangement of cognitive plans which all share negative expectancies about the short- and long-term future. Beck and Steer (1993b, 1), authors of the BHS assessment used within this research project, define the basic beliefs of hopeless individuals as

- (1) nothing will turn out right for them,
- (2) they will never succeed at what they attempt to do,
- (3) their important goals can never be obtained, and
- (4) their worst problems will never be solved.

The BHS consists of 20 true/false statements which can be self-reported, nine of which are keyed false and 11 are keyed true to indicate pessimistic belief in the future, in line with the four belief statements above. For example, a false statement given for *'I look forward to the future with hope and enthusiasm'* endorses pessimism for the future. A copy of the self-reporting form can be found in Appendix F.

Learned helplessness describes the state that individuals adopt when they habitually consider there is no point in attempting tasks as they expect to fail, as

a result of suffering constant failures. These sentiments have often been described by dyslexic HE students, some of which appear in this chapter. As previously explained, the attribution theory (Bandura,1997) is concerned with reasons individuals attribute to the outcomes of their life goals as either successes or failures. However, the locus of control (LOC) importantly relates to whether the reasons for success or failure are perceived to be within the individual's control (*internal locus of control*) or rather within the control of other forces or people (*external focus of control*) (Reid and Zeigler,1981; Burden, 2005). As Nowicki (2016) rightly pointed out, individuals tend to do better if they believe they mostly control their own lives, rather than if they believe they are always victims controlled by external factors, such as fate.

4.7.2 Interpreting the data

The findings from participants' self-reported data relating to their fluctuating emotional status during the monitored period of this project are presented in the form of graphs to facilitate analysis and comparisons between participants. The graphs have all been plotted over a standardised timescale between 25/11/2015 and 27/05/2016 on a weekly basis. However, it should be noted that all participants were not able to submit data every week since starting and finishing dates varied between participant and some did not submit data while on Christmas or Easter breaks, or when they were ill. These reasons account for the incomplete data, but it is believed sufficient was presented to produce the findings described below.

Copies of all graphs constructed from the data gathered during this project appear within the profiles of individual participants in Appendix L. Full-page versions of graphs specifically referred to within this chapter are supplemented

by smaller versions within the text to provide more clarity for the reader's interpretation of the findings.

4.7.3 Sarah – modelling data interpretation

To further support interpretation of these findings, the data relating to **Sarah** is explained more fully below. **Sarah** was a 19-year-old female, full-time, first year, undergraduate student who was screened at 13 for dyslexia but identified as being dyslexic at 16 years and had extra time allowed for exams at college. She was currently attending 1:1 study skills support with a Specialist Dyslexia Support Tutor. She believed some of her lecturers are also aware of her dyslexia but she added

“I have a learning support plan which I think they are supposed to have seen but I’m pretty sure they haven’t. For exams, I need extra time, coloured paper and a bigger font size but I don’t think my lecturers are aware”.

Her friends on her course were aware she was dyslexic and she was OK with this. **Sarah** reported 8 incidences during 19 weeks (Frequency of CI = 0.42).

Figure 4.5 Sarah -The Self Image Profile for Adults (SIP-AD) and Frequency of Incidence of Cognitive Immobilisation

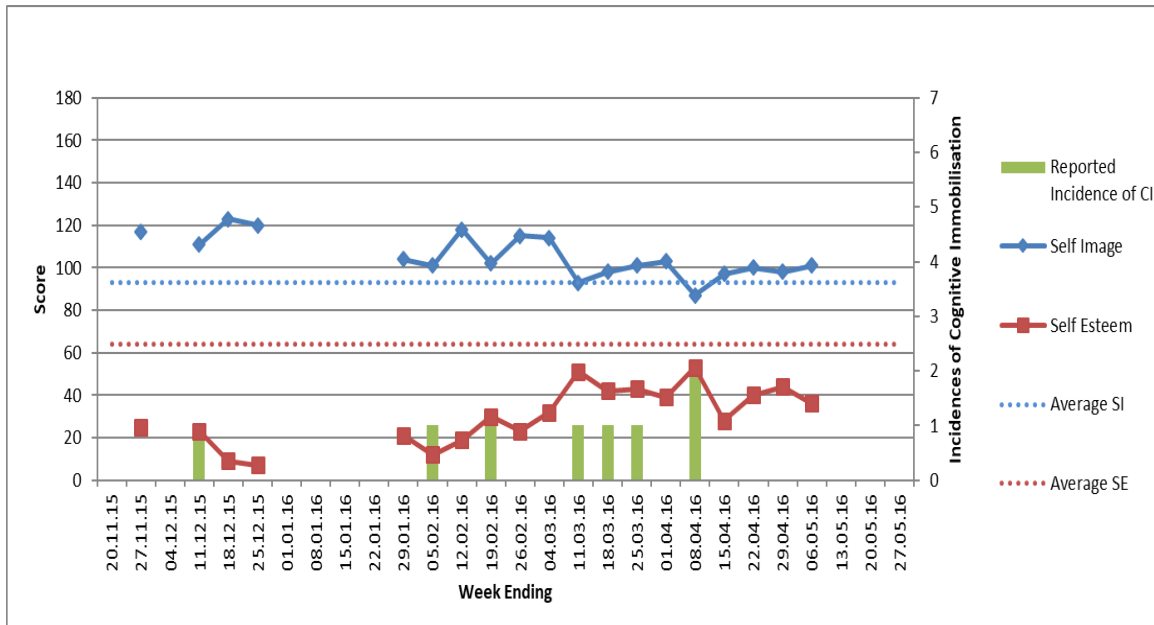


Figure 4.5 above shows the incidences of cognitive immobilisation (CI) experienced and recorded by **Sarah** in the weeks she experienced them (shown in green). The right-hand vertical axis shows the number of times in the week **Sarah** experienced CI, so from the graph, she experienced CI once in weeks ending 11/12/15, 05/02/16, 19/02/16, 11/03/16, 18/03/16 and 25/03/16 and twice in week ending 08/04/16.

Scores for self-image (shown in blue) and self-esteem (shown in red) are displayed on the left-hand vertical axis and correspond to the total scores for each derived from the self-reported assessment forms. The dotted lines show the expected average score for the age of the participant, blue for self-image at **93** and red for self-esteem at **64**. It can be interpreted from the scores for self-image (blue) in figure 4.5 that **Sarah's** level of self-image was consistently

above the average expected for her age, except when it dipped to below average in week ending 08/04/16 when she experienced 2 incidences of CI.

The score for self-image is calculated directly from the statements made on the self-reported forms and scored by myself using the assessor's manual.

When interpreting **Sarah's** fluctuations in self-esteem, corresponding in time to the values for self-image and incidences of CI, it must be born in mind that the corresponding scores for self-esteem are calculated as a discrepancy between the scores of "where I think I am now" (= score for self-image) and "where I would like to be" (scored on the self-reporting sheet separately), on the same scale. See the self-reporting form for SIP-AD in Appendix D for further clarification. The score for self-esteem is the difference between these two recorded values.

A lower score for this discrepancy (=score for Self-Esteem) represents the individual feeling nearer to "where I would like to be", suggesting a higher level of Self-Esteem. Therefore, a score of 0 for self-esteem would suggest the highest level of self-esteem as the individual feels 'they are where they would like to be at the present time'.

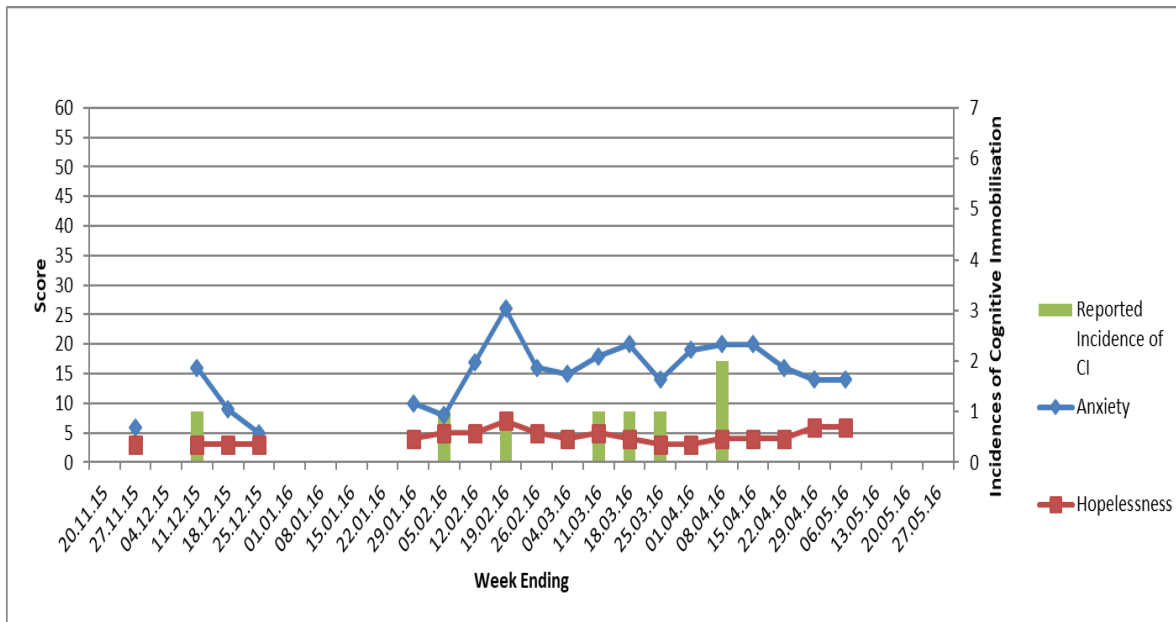
Referring back to figure 4.5, the red line representing fluctuations in **Sarah's** level of self-esteem shows that her self-esteem was always higher than the average level of **64** expected for her peer age group, depicted by the dotted red line. The lowest level of **Sarah's** self-esteem was at a score of **53** during week ending 08/04/16, which coincided with her lowest level of self-image at a score of **87**, during the week she experienced 2 incidences of cognitive immobilisation (CI).

Further information gathered during 1:1 interviews/monitoring sessions and Sarah's diary entries included the following, which served to explain the fluctuations in **Sarah's** self-image and self-esteem:

Sarah experienced incidences of CI when she had assignments due for submission, especially if more than one was due on the same day, as in week ending 08/04 when she also attended an interview. No CI was recorded during or after the Xmas period until week ending 05/02 when the next assignment was due; nor were any incidences of CI recorded after week ending 08/04 after the last written assignments were submitted.

Sarah's self-image levels fluctuated slightly during the reported period, dipping in response to incidences of CI, but remaining just above average apart from a below average level recorded during week ending 08/04. Sarah's self-esteem levels were always above average, but the fluctuations mirrored those of the self-image levels, with the lowest level also recorded for week ending 08/04, but still above average.

Figure 4.6 Sarah - Beck Anxiety Inventory, Beck Hopelessness Scale and Frequency of Incidence of Cognitive Immobilisation



Key	
Beck Anxiety Inventory	
Score	Descriptor
0 - 7	Minimal anxiety
8 - 15	Mild anxiety
16 - 23	Moderate anxiety
26 - 63	Severe anxiety
Beck Hopelessness Scale	
Score	Descriptor
0 - 3	Minimal
4 - 8	Mild
9 - 14	Moderate
>14	Severe

As in Figure 4.5, Figure 4.6 above shows the incidences of cognitive immobilisation (CI) experienced and recorded by **Sarah** in the weeks she experienced them (shown in green). Again, the right-hand vertical axis shows the number of times in the week **Sarah** experienced CI, so from the graph, she experienced CI once in weeks ending 11/12/15, 05/02/16, 19/02/16, 11/03/16, 18/03/16 and 25/03/16 and twice in week ending 08/04/16.

The scores showing the fluctuation of **Sarah's** levels of anxiety throughout the monitoring period are derived from her self reporting forms for the BAI assessment (see Appendix E) and are shown in blue on the graph (Figure 4.6). Score values are shown on the left-hand vertical axis and the relevant range descriptors for minimal, mild, moderate and severe anxiety are displayed in the key below. Concurrent fluctuations in **Sarah's** levels of hopelessness are obtained from the self-reported form for the BHS assessment (see Appendix F) and are plotted in red. Score values are again shown on the left-hand vertical axis and have separate range descriptors from the scores for anxiety. The range descriptors for hopelessness are minimal, mild, moderate and severe and they are listed in the key under the graph.

When interpreting the data presented in Figure 4.6, it is important to note that the scores for the ranges for anxiety and hopelessness are quite different.

Again, further information gathered during 1:1 interviews/monitoring sessions and's diary entries included the following, which served to explain the fluctuations in **Sarah's** anxiety and hopelessness, in respect of her incidences of cognitive immobilisation (CI):

From Figure 4.6, it appears that **Sarah's** anxiety levels fluctuated mostly between mild and moderate range, showing increased anxiety coinciding with incidences of CI. Her anxiety level was self-reported within the severe range during week ending 19/02 when her laptop was broken. **Sarah** was not concerned about her anxiety levels, commenting that this was how she usual felt within an academic environment. The researcher suggested anxiety may

exacerbate her frequent illness and suggested she should consult her GP (no comment or feedback from **Sarah**).

Sarah's hopelessness levels hardly fluctuated within the minimal and mild ranges throughout the self-reported period and did not increase in response to rises in anxiety levels nor incidences of CI. This profile may suggest an internal locus of control in view of the fairly constant, low levels of hopelessness.

The self-reported information was reviewed with each participant at each monitoring interview to ensure correct procedure had been followed, thereby maximising the reliability and validity of the data thus collected.

Figure 4.5 Sarah -The Self Image Profile for Adults (SIP-AD) and Frequency of Incidence of Cognitive Immobilisation

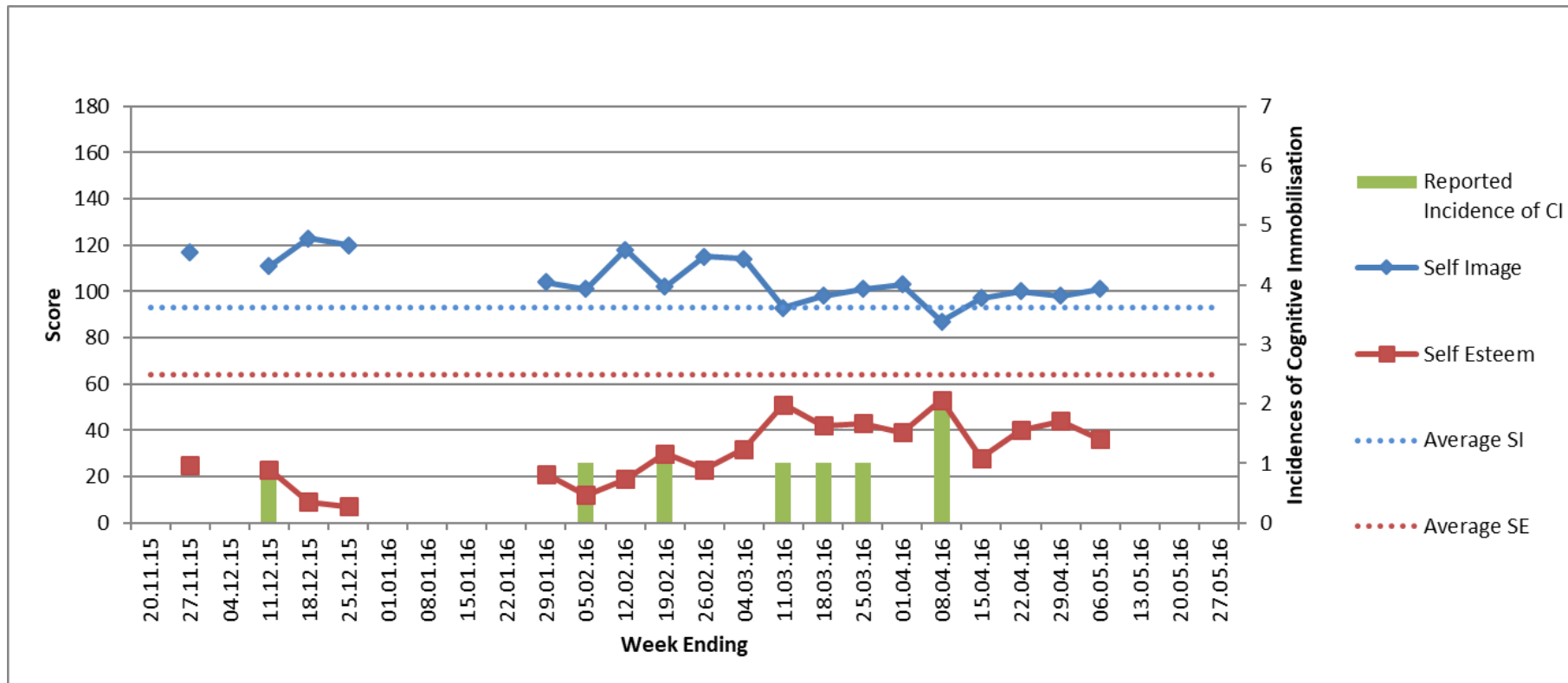
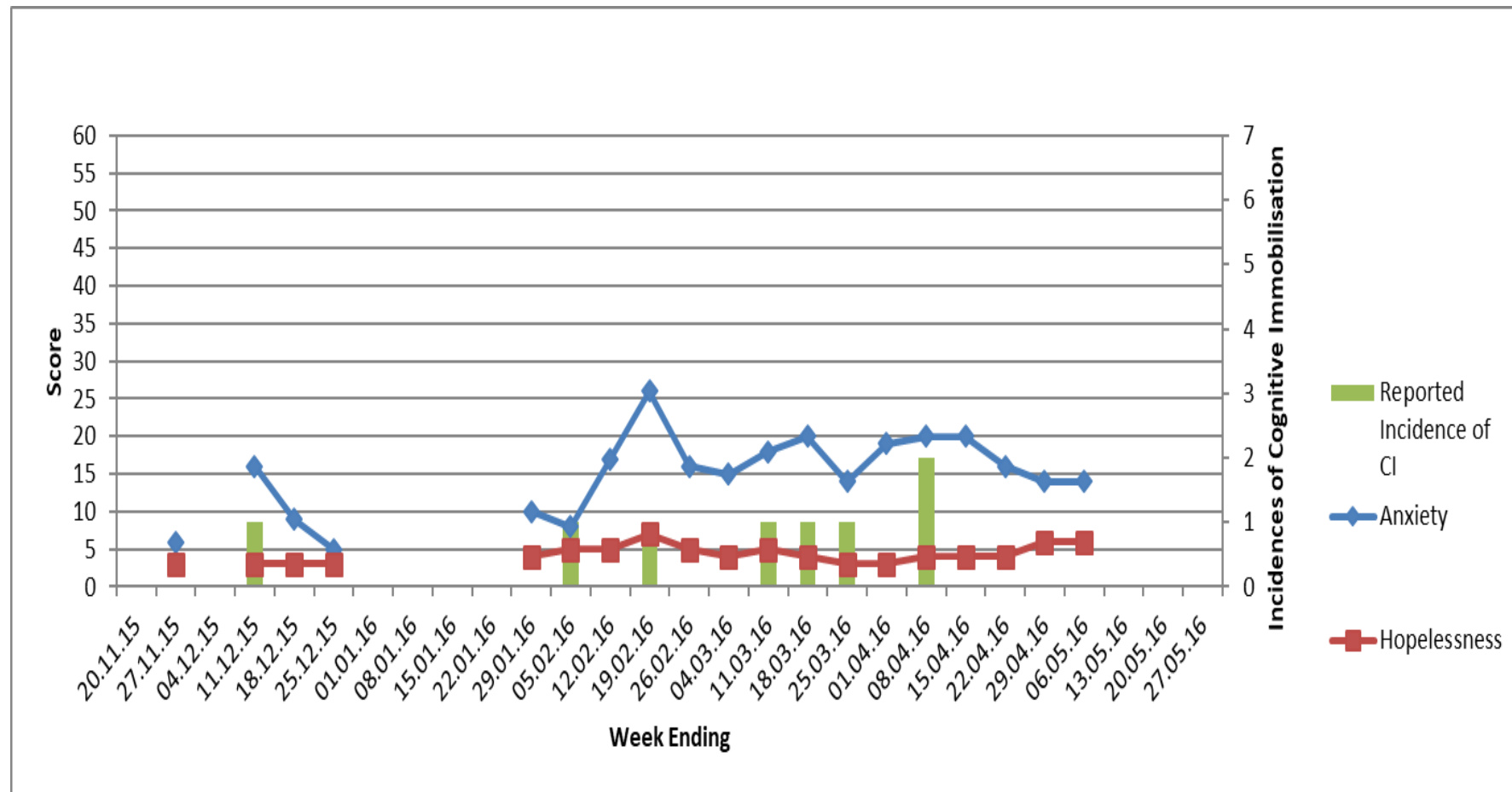


Figure 4.6 Sarah - Beck Anxiety Inventory, Beck Hopelessness Scale and Frequency of Incidence of Cognitive Immobilisation



4.7.4 Pearl

Pearl was a 21-year-old female, full-time, third year, undergraduate student who was identified as being dyslexic at 17 years, in the 6th form at school. She was currently pleased with her 1:1 study skills support with a Specialist Dyslexia Support Tutor. Her academic tutors and friends on her course were aware she was dyslexic and she was “...*not bothered who knows*”. Because of her expressed extreme anxiety and depression, Pearl was encouraged by the researcher to contact the University Counselling Service (she declined). **Pearl** was most concerned that no-one became aware of this. The researcher also encouraged **Pearl** to consult her GP about her anxiety levels, but she persistently delayed doing so throughout the project.

In view of **Pearl**'s repeated comments concerning her wish to keep her anxiety and depression confidential, the data collected from her self-completion forms were withdrawn and destroyed at her request. It should be noted that the researcher repeatedly recommended that **Pearl** should request counselling support and that she should consult her GP about her reported constant high levels of anxiety. To the researcher's knowledge she persistently delayed acting on either of these recommendations, stating,

“I wouldn't want people to know about my anxiety and depression though, 'cos that's something more personal...more stigma attached to males I think...can't show their emotions or cry...it is so stupid but it is human nature.” (sic)

However, **Pearl** expressed the wish to continue to attend the regular monitoring interviews as she considered having the opportunity to meet and talk about her problems very beneficial to her. She was also keen to carry on receiving support in using the coping strategies introduced during these sessions and

was amenable to any data collected from these sessions and from her TOMAL-2 assessment to be used for analysis at the end of the project. The researcher took the ethical view to accept and respect **Pearl**'s request but draws the attention of the reader to these facts.

4.7.5 Overview of findings relating to fluctuating emotional status

(i) Self-Image/Self-Esteem

It was generally observed that fluctuations in self-image were mirrored by those of self-esteem, that is, when self-image increased then so did self-esteem, although some participants tended to report a level of self-image consistently above average.

(ii) Anxiety

Increases in anxiety levels tended, unsurprisingly, to occur around submission dates for assignments, exams, receiving feedback from written work or exam results, and when participants were ill, coinciding with incidences of CI.

(iii) Hopelessness

During the closing weeks of the project, **Lucy**, **Judy** and **Brian** all consistently recorded higher scores for hopelessness (BHI) than for anxiety (BAI) and all three participants had decided to take a study break at the end of this academic year. Their data is analysed in more detail below.

(iv) Locus of control (LOC)

During the course of the monitored self-reporting period a pattern emerged suggesting that participants whose scores for hopelessness were consistently low, or their comments during the regular 1:1 interview/monitoring meetings

repeated the sentiments echoing pessimistic views of their future, could be suspected of having an external locus of control. By examining data for hopelessness in conjunction with comments made by the participants the following tentative links were identified:

Table 4.5 Suggested locus of control from language used in monitoring meetings & self-report helplessness assessment

Participant	Suggested Locus of Control (LoC)	Participant Decision
Angela	Internal	
Alan	Internal	
Carolyn	External	Study Break in previous academic year
Diane	External	Undecided
Lucy	External	Study Break before 3 rd year
Tom	Internal	
Paula	External	Resits over summer break
Judy	External	Study Break before postgraduate course
Wendy	Internal	
Pearl	External	Not proceeding to postgraduate study
Brian	External	Study Break, deferred thesis + 2 resits
Sarah	Internal	
Les	Internal	

This suggestion of a possible link between levels of hopelessness in relation to external locus of control and the participants' needing to take a study break has not been previously identified. Despite being found within such a small sample of dyslexic HE students, this discovery was analysed further using Pearson's Chi-square Test in SPSS which suggested that participants' locus of control may be very significantly (**p <0.01**) associated with their decisions to take study breaks or leave their course before completion. The result was

$$X^2=9.55, df=1, p < 0.002 .$$

Further analysis of the data relating to **Lucy, Judy** and **Brian** is shown below. These participants all consistently recorded higher scores for hopelessness (BHI) than for anxiety (BAI) at the end of the project and all decided to take a study break at the end of this academic year. This analysis serves to strengthen the likelihood that fluctuations in hopelessness may be used to predict the possibility that a dyslexic HE student may need to take a study break or even fail to complete their course, as a result of fluctuations in emotional status closely related to cognitive immobilisation.

4.7.6 Lucy

Lucy was a 19-year-old female, full-time, second year, undergraduate student who was identified as being dyslexic at 11 years. She was offered one-to-one support (52 hours/year, suggesting significant need for support) with a Specialist Support Tutor when she first arrived at the University,

“I tried it for a couple of hours – it was crap so don’t bother.”

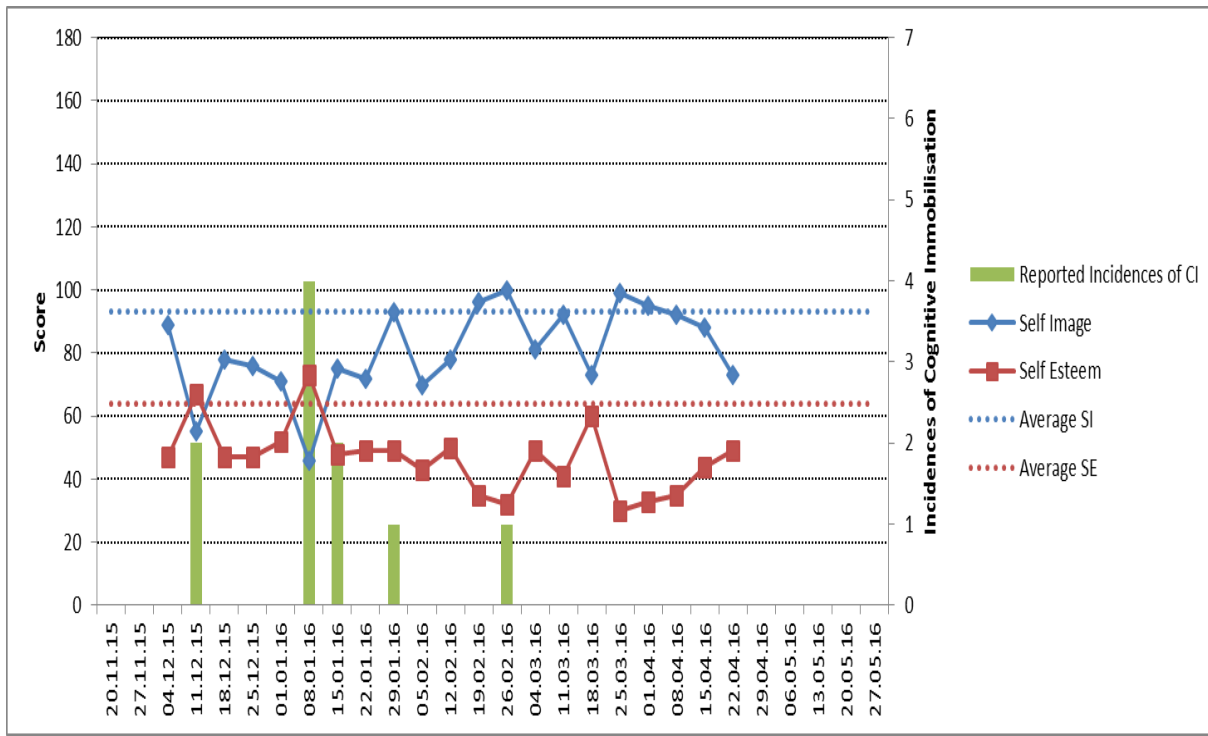
Lucy therefore decided not to accept the support. She also insisted

*“I prefer people **not** to know I am dyslexic because it is my business”.*

Nevertheless, some students and most of the lecturers on her course were aware she was dyslexic,

Lucy reported 10 incidences during 21 weeks (Frequency of CI = 0.48).

Figure 4.7 Lucy - The Self Image Profile for Adults (SIP-AD) and Frequency of Incidence of Cognitive Immobilisation



Average Self Image = 93 Average Self Esteem = 64

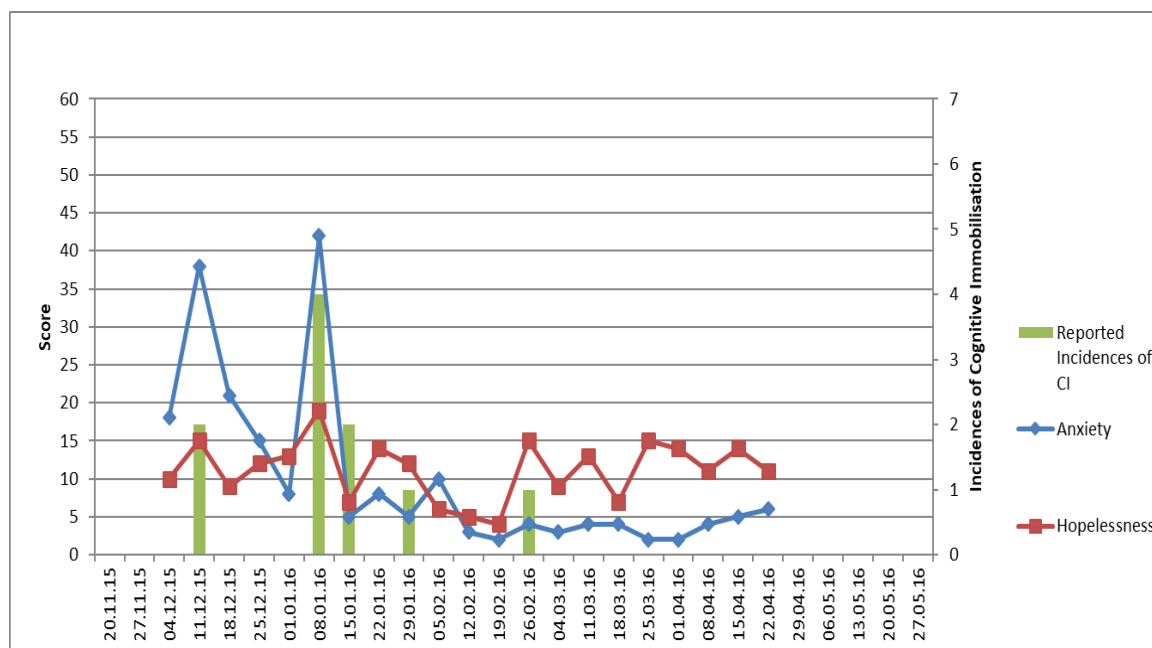
NB Higher score for Self Esteem = lower level of Self-Esteem since it is a measure of the discrepancy between the scores of “where I think I am now” and “where I would like to be”, on the same scale.

A lower score for this discrepancy (=score for Self-Esteem) represents the individual feeling nearer to “where I would like to be”, suggesting a higher level of Self-Esteem. Therefore, a score of 0 for self-esteem would suggest the highest level of self-esteem as the individual feels ‘they are where they would like to be at the present time’.

Lucy’s reported incidences of CI were attributed to the University’s Internet system being down (during week ending 11/12 - “*Thwarted by the Uni!*”) and stress due to exams and submission deadlines.

Self-image was usually below average. Self-esteem mirrored the fluctuations in self-image but was always above average.

Figure 4.8 Lucy - Beck Anxiety Inventory, Beck Hopelessness Scale and Frequency of Incidence of Cognitive Immobilisation



Key	
Beck Anxiety Inventory	
Score	Descriptor
0 - 7	Minimal anxiety
8 - 15	Mild anxiety
16 - 23	Moderate anxiety
26 - 63	Severe anxiety
Beck Hopelessness Scale	
Score	Descriptor
0 - 3	Minimal
4 - 8	mild
9 - 14	Moderate
>14	Severe

Lucy's anxiety levels peaked within the very severe range during the first two weeks where CI was reported before and after Xmas (weeks ending 11/12 and 08/01). From 15/01, **Lucy's** anxiety level decreased significantly and from 12/02 to 22/04 it remained within the minimal range, despite incidences of CI being reported during weeks ending 29/01 and 26/02.

Hopelessness levels fluctuated between the severe/moderate ranges throughout the project timeframe, peaking during the incidences of CI reported during week ending 08/01. From the week ending 12/02 Hopelessness levels fluctuated between severe and moderate ranges and were significantly higher than recorded anxiety levels. This may suggest an external locus of control, as previously described in Chapter 2 and above.

Lucy was urged to consult her GP and to apply for further counselling through the University Services. **Lucy is taking a year's study break before commencing her third year at the University.**

Figure 4.7 Lucy - The Self Image Profile for Adults (SIP-AD) and Frequency of Incidence of Cognitive Immobilisation

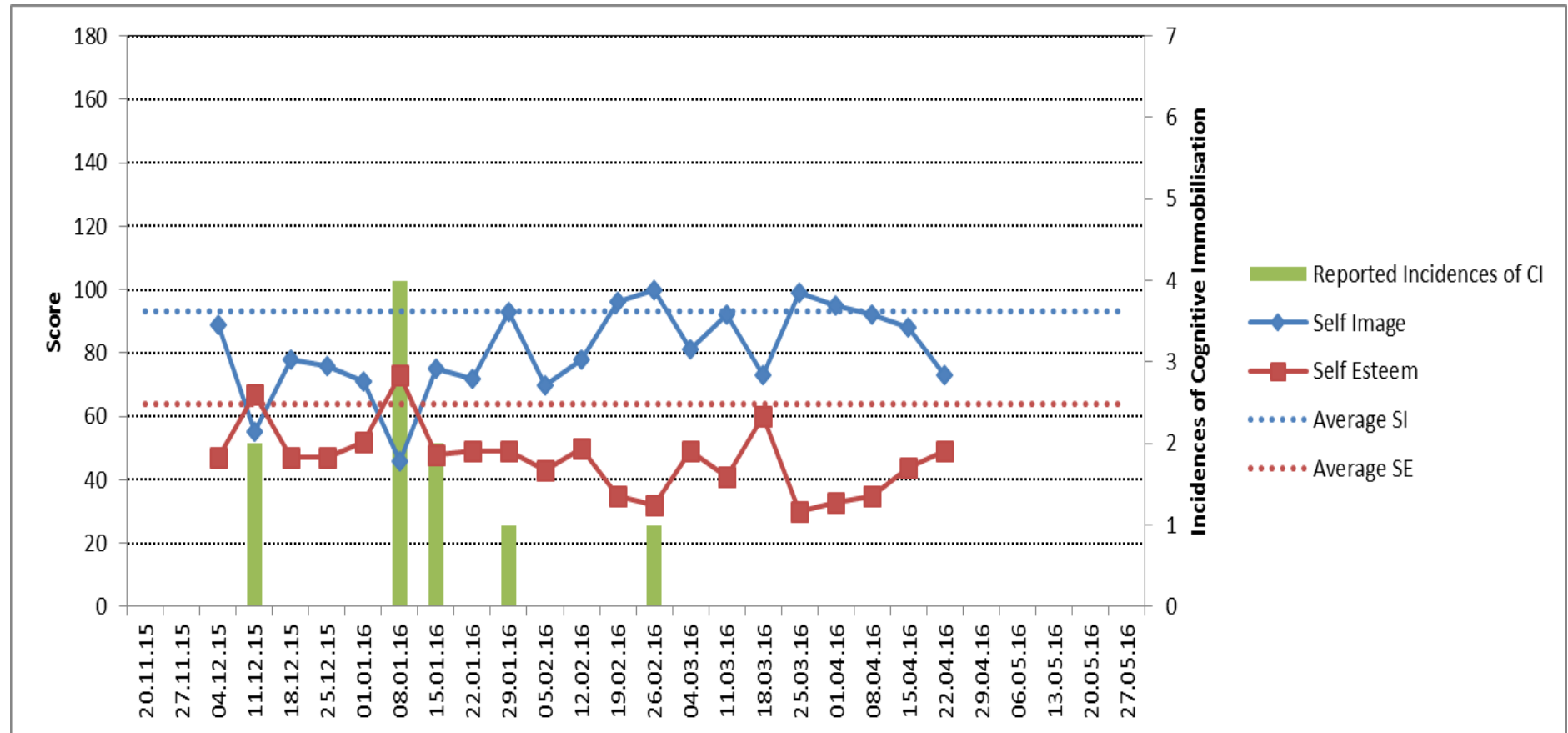
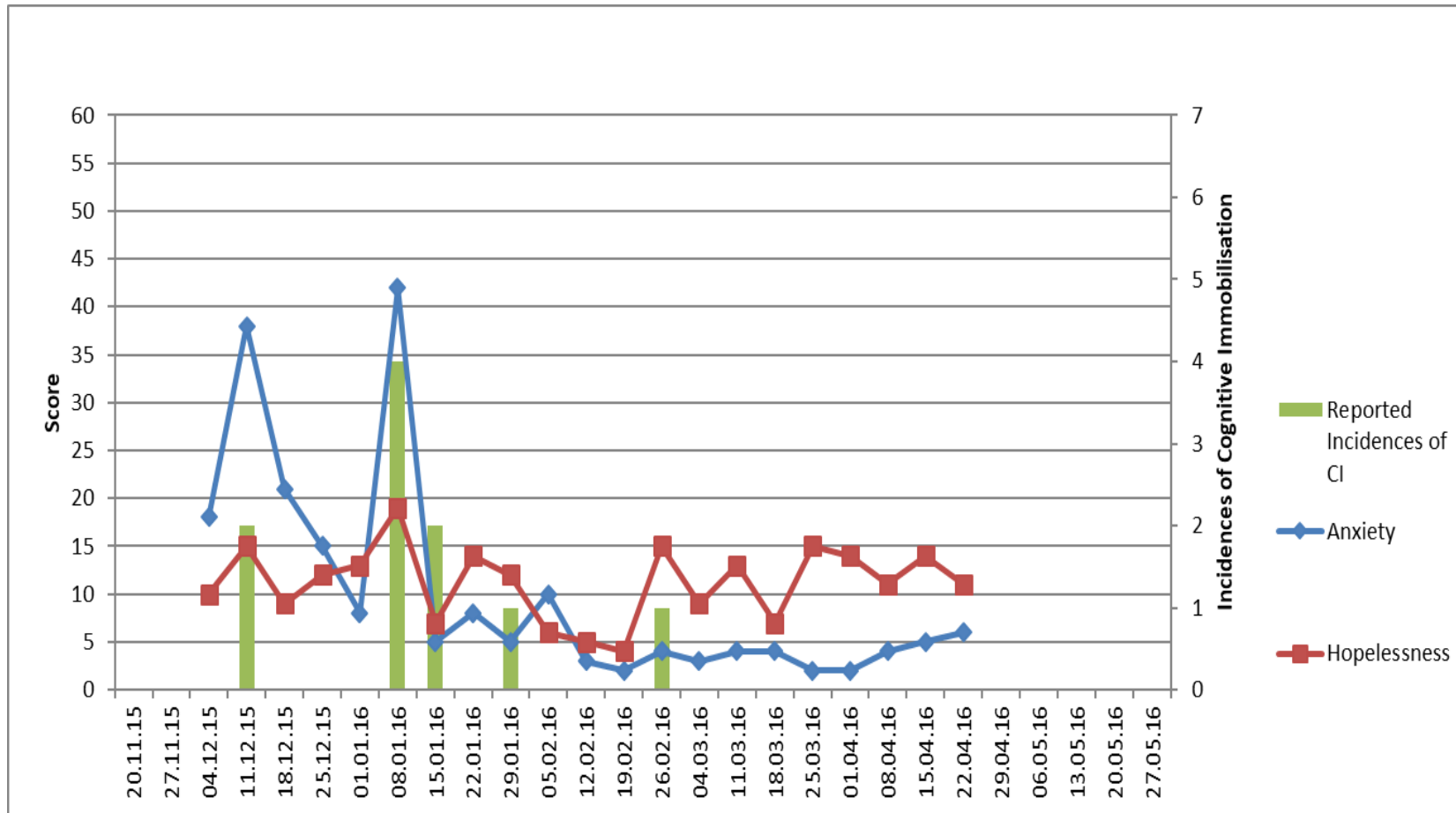


Figure 4.8 Lucy - Beck Anxiety Inventory, Beck Hopelessness Scale and Frequency of Incidence of Cognitive Immobilisation



4.7.7 Judy

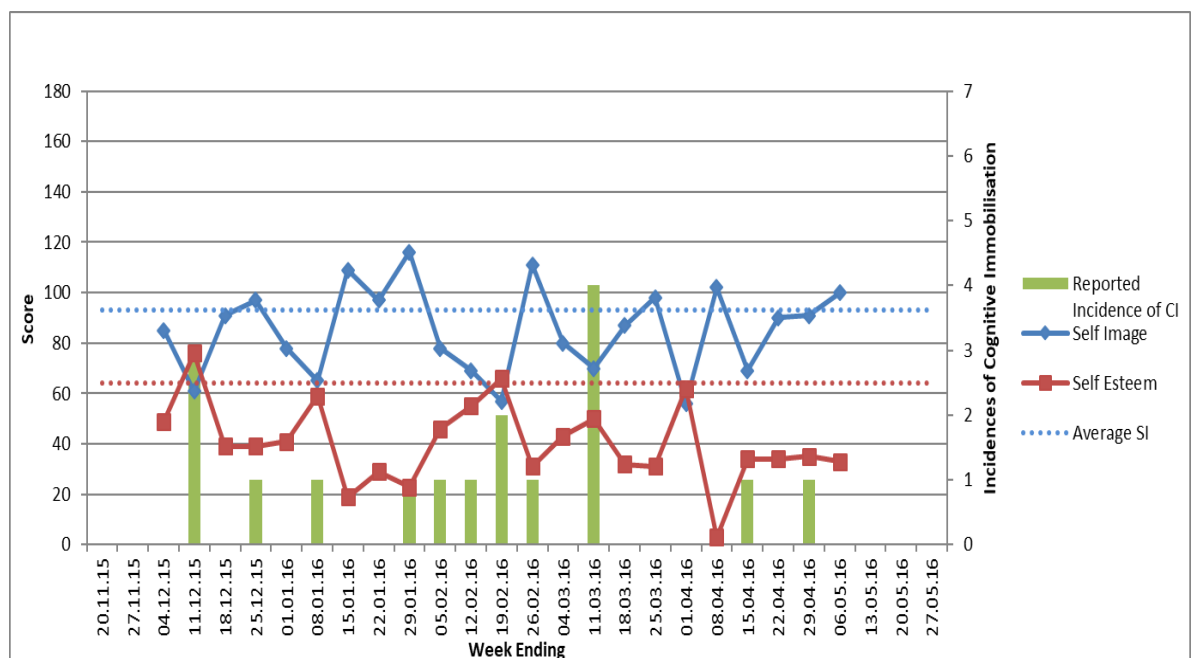
Judy was a 20-year-old female, full-time, third year, undergraduate student who was identified as being dyslexic at seven years old:

“When I was 7, xxxx described me as having the cognitive ability to build an atom bomb and the reading age of a gnat – things have not changed much.”

At the beginning of her second year at the University, **Judy** was offered 40 hrs/year 1:1 dyslexia support with a Specialist Support Tutor, but after trying it for 3 hrs, she decided it was not helpful so did not continue with it. **Judy** thought her tutors and other students on her course knew she was dyslexic, but she commented that she didn’t mind who knew as “...it won’t make any difference”.

Judy reported 17 incidences during 23 weeks (Frequency of CI = 0.74).

Figure 4.9 Judy - The Self Image Profile for Adults (SIP-AD) and Frequency of Incidence of Cognitive Immobilisation



Average Self Image = 93 Average Self Esteem = 64

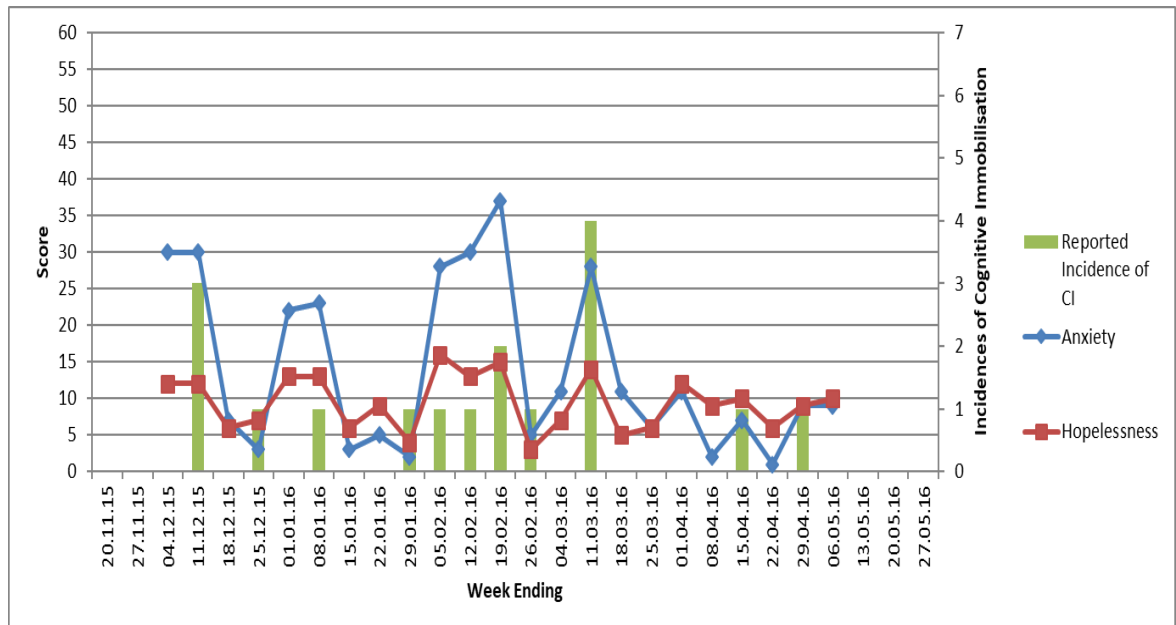
NB Higher score for Self Esteem = lower level of Self-Esteem since it is a measure of the discrepancy between the scores of “where I think I am now” and “where I would like to be”, on the same scale.

A lower score for this discrepancy (=score for Self-Esteem) represents the individual feeling nearer to “where I would like to be”, suggesting a higher level of Self-Esteem. Therefore, a score of 0 for self-esteem would suggest the highest level of self-esteem as the individual feels ‘they are where they would like to be at the present time’.

Falls in self-image and self-esteem levels appear to coincide with incidences of CI. There were no incidences of CI reported over the Easter break, when **Judy** was also suffering from ‘flu.

Self-image fluctuations are above and below average and mirror the fluctuations in self-esteem, although self-esteem was usually above or well above average.

Figure 4.10 Judy - Beck Anxiety Inventory, Beck Hopelessness Scale and Frequency of Incidence of Cognitive Immobilisation



Key	
Beck Anxiety Inventory	
Score	Descriptor
0 - 7	Minimal anxiety
8 - 15	Mild anxiety
16 - 23	Moderate anxiety
26 - 63	Severe anxiety
Beck Hopelessness Scale	
Score	Descriptor
0 - 3	Minimal
4 - 8	mild
9 - 14	Moderate
>14	Severe

There are three peaks of severe anxiety when **Judy's** anxiety levels coincided with incidences of CI triggered by submission dates and a further peak within the moderate range during CI triggered by exams. After Easter, anxiety levels range between mild and minimal even though there are two more incidences of CI triggered by the last assignments of the year.

Hopelessness levels fluctuated between mild and severe, roughly mirroring the peaks in anxiety and relating to CI. Levels for hopelessness were usually between moderate to severe, and from week ending 25/03 **Judy**'s reported levels of hopelessness were higher than the corresponding levels of anxiety. This profile may suggest **Judy** has struggled to maintain an internal locus of control (*"I sat at a computer non-stop for about 12 hours a day all week"*), but her high level of BHI persists, possibly suggesting an external locus of control currently exists for her.

Judy was encouraged to consult her GP concerning her tendency to faint under stress.

At end of the academic year, Judy is not returning to begin an MSc course, as she originally intended, but will be taking a year's study break.

Figure 4.9 Judy - The Self Image Profile for Adults (SIP-AD) and Frequency of Incidence of Cognitive Immobilisation

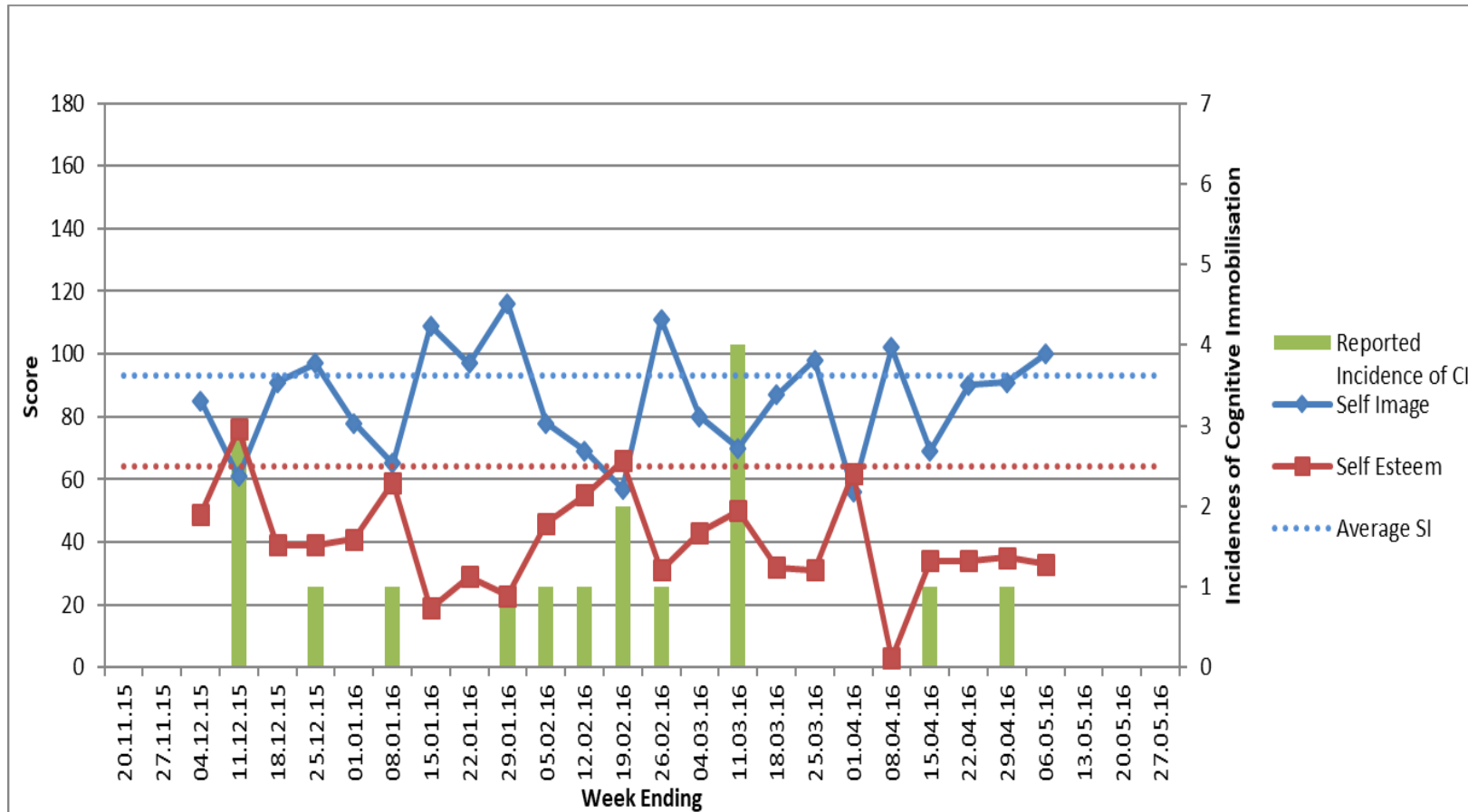
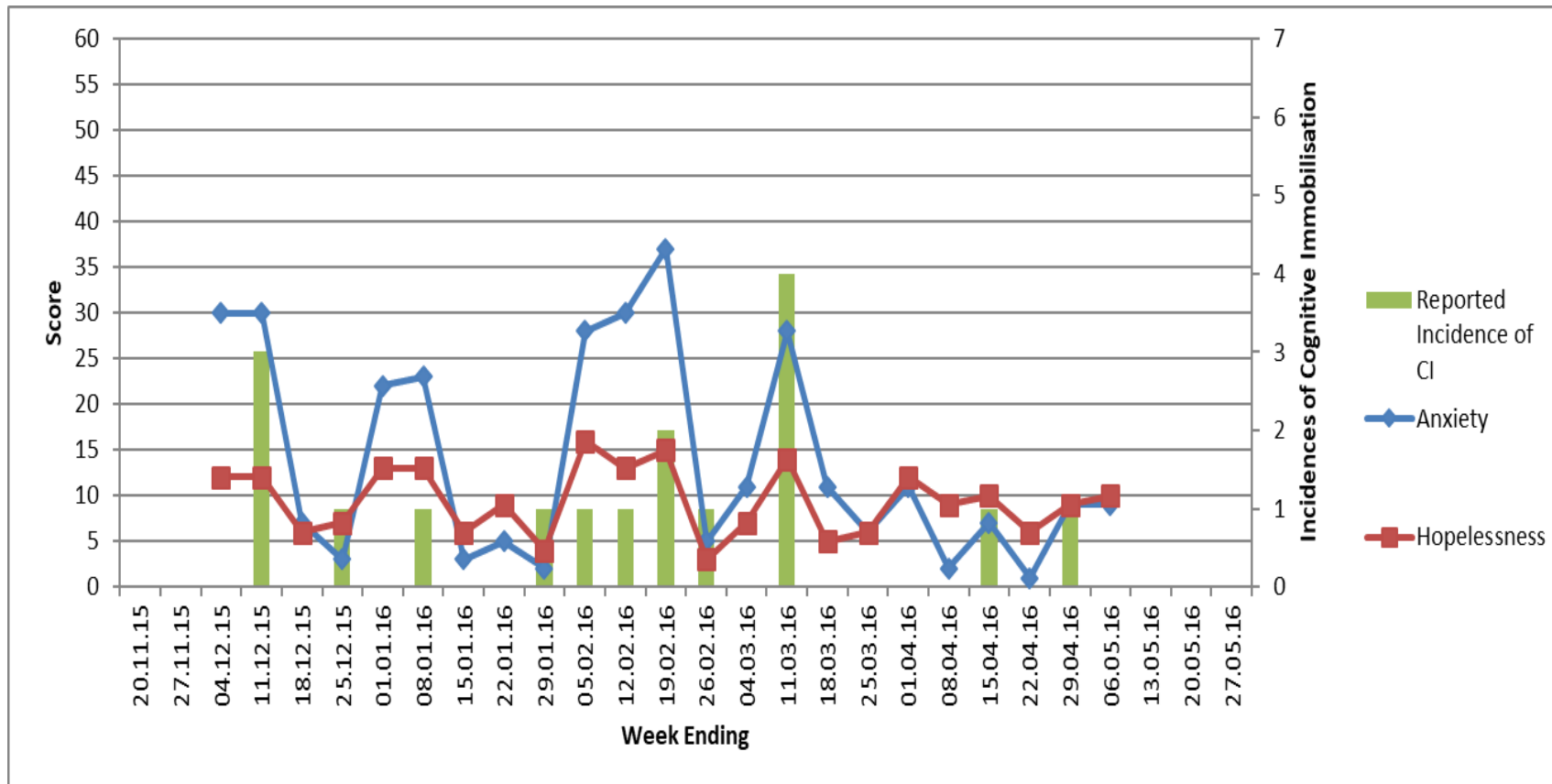


Figure 4.10 Judy - Beck Anxiety Inventory, Beck Hopelessness Scale and Frequency of Incidence of Cognitive Immobilisation



4.7.8 Brian

Brian was a 32-year-old male, full-time, postgraduate student who was identified as being dyslexic at 28 years old. He was currently “OK” with his 1:1 study skills support with a Specialist Dyslexia Support Tutor, although he added that he felt attending this support

“...eats into time I want to use for my work”.

“I didn’t pass a module lately. I wasn’t wise enough. I have support but I have that many assignments I haven’t really got the time to go for the support.”

His tutors and friends on his course were aware he was dyslexic and he was “OK” with this.

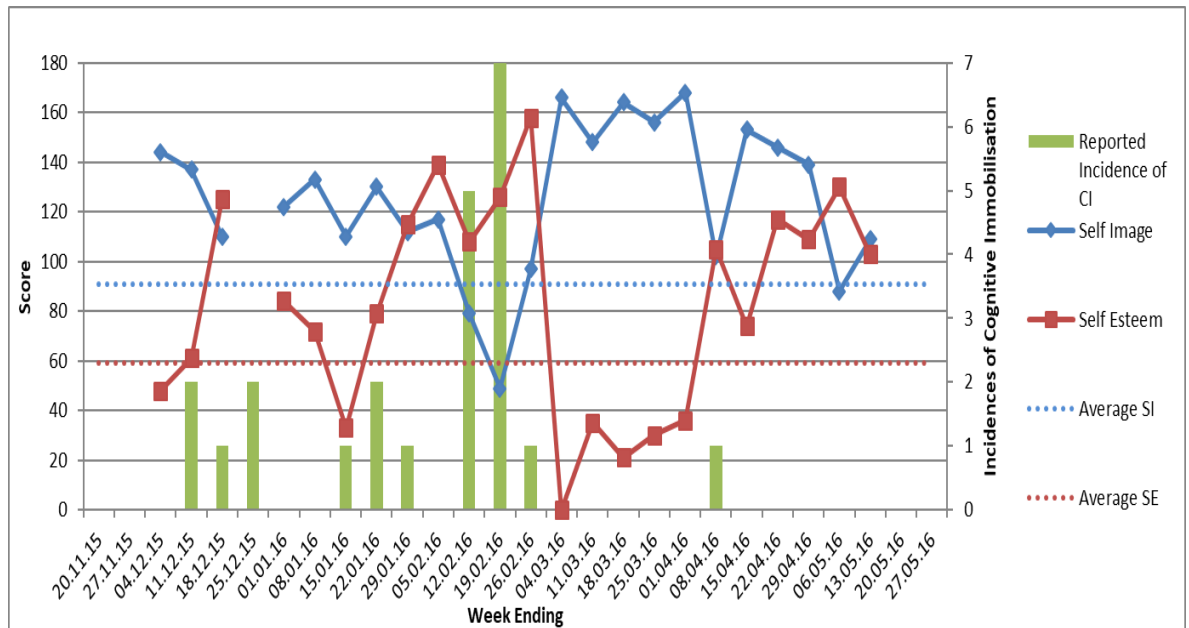
Brian reported 23 incidences during 24 weeks (Frequency of CI = 0.96).

Brian experienced incidences of CI regularly until week ending 04/03, after which he only experienced one incidence of CI in week ending 08/04 when he was hospitalised, until his last data entries for week ending 3/05. The incidences of CI coincided with **Brian** learning of his results and starting a new class, but the highest frequencies of CI were recorded during week ending 12/02 (5 incidences) and week ending 19/02 (7 incidences), both of which coincided with high levels of stress associated with assignment submissions. On 19/02, **Brian** wrote in his diary:

“...to be honest, I’m worried but a part of me no longer cares.”

This comment echoes the language related to feelings of hopelessness, as recorded in the self-reported BHS forms.

Figure 4.11 Brian - The Self Image Profile for Adults (SIP-AD) and Frequency of Incidence of Cognitive Immobilisation



Average Self Image = 93 Average Self Esteem = 64

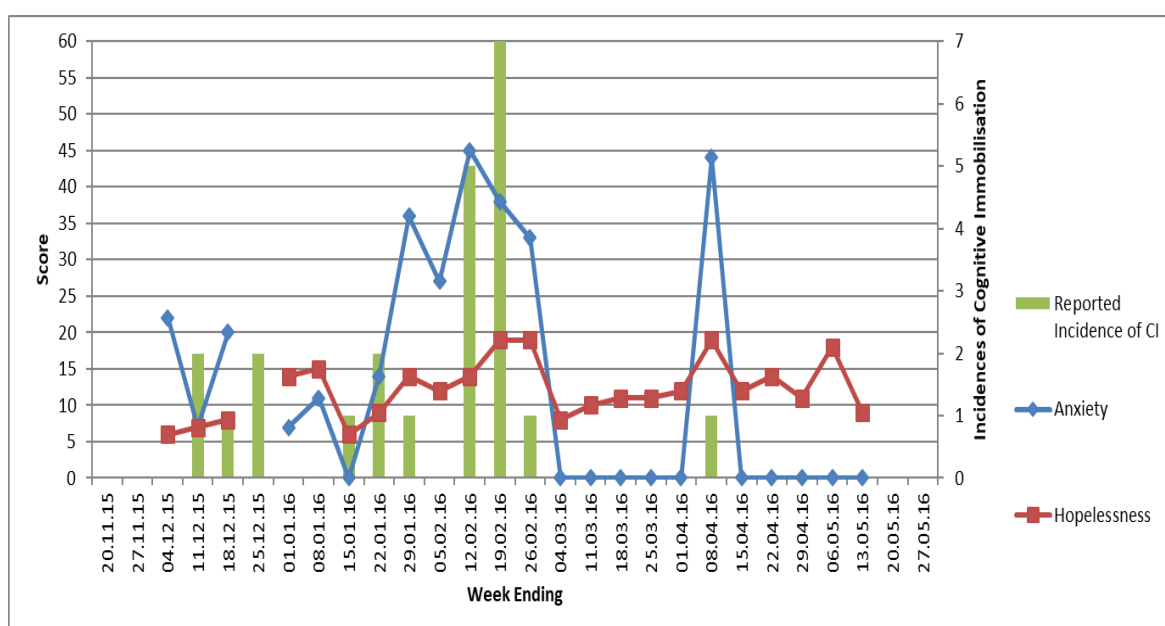
NB Higher score for Self Esteem = lower level of Self-Esteem since it is a measure of the discrepancy between the scores of “where I think I am now” and “where I would like to be”, on the same scale.

A lower score for this discrepancy (=score for Self-Esteem) represents the individual feeling nearer to “where I would like to be”, suggesting a higher level of Self-Esteem. Therefore, a score of 0 for self-esteem would suggest the highest level of self-esteem as the individual feels ‘they are where they would like to be at the present time’.

Brian’s self-image level was above average except for the two weeks with the highest frequency of CI mentioned above when his self-image level dipped below average. Other weeks where CI was reported also coincided with dips in self-image levels but not to the same extent.

Brian's self-esteem levels were not often above average, but the fluctuations tended to mirror those of self-image. Frequency of CI did not always appear to influence **Brian**'s self-esteem, which decreased steadily from its highest level in week ending 04/03 to his last data entries.

Figure 4.12 Brian - Beck Anxiety Inventory, Beck Hopelessness Scale and Frequency of Incidence of Cognitive Immobilisation



Key	
Beck Anxiety Inventory	
Score	Descriptor
0 - 7	Minimal anxiety
8 - 15	Mild anxiety
16 - 23	Moderate anxiety
26 - 63	Severe anxiety
Beck Hopelessness Scale	
Score	Descriptor
0 - 3	Minimal
4 - 8	mild
9 - 14	Moderate
>14	Severe

Brian's anxiety levels fluctuated widely between mild and severe anxiety, with rises in anxiety appearing to correspond to, or follow, the frequency of incidences of CI. From week ending 04/03 to week ending 13/05, **Brian**

reported minimal levels of anxiety, apart from a sharp increase to a severe level of anxiety in week ending 08/04, coinciding with his hospitalisation.

Brian's hopelessness levels fluctuated between mild and severe hopelessness with slight increases mirroring the peaks in anxiety level. From week ending 04/03 to week ending 13/05, **Brian**'s level of hopelessness consistently registered above his reported level of anxiety, possibly suggesting an external locus of control, appearing to contradict his reported levels of self-image and self-esteem over the same period.

"I'm thinking maybe it's time I just accepted that I am not going to work in the areas that I wanted to, but, you know ... I'll probably... as much as I wanted to be a teacher or something in the past, I'm not going to do it because I wouldn't be able to do the paperwork."

On the self-reporting form for hopelessness (BHI), **Brian** consistently agreed with such statements as *"Things just won't work out the way I want them to"*; *"It's very unlikely that I will get any real satisfaction in the future"* and *"There's no use in really trying to get anything I want because I probably won't get it"*.

Brian was encouraged to apply for counselling and consult his GP concerning his high levels of anxiety and depression. He explained that he did not attend any counselling sessions because

"The course was finishing ... One of the things of depression...they say, 'pull yourself together'... I would just like to crawl into the earth and finish 'cos I thought at least I don't have to be part of the group of people that I was forced to be in throughout the course."

Brian has arranged to defer submitting his final thesis and 2 re-sit exams to next year.

Figure 4.11 Brian - The Self Image Profile for Adults (SIP-AD) and Frequency of Incidence of Cognitive Immobilisation

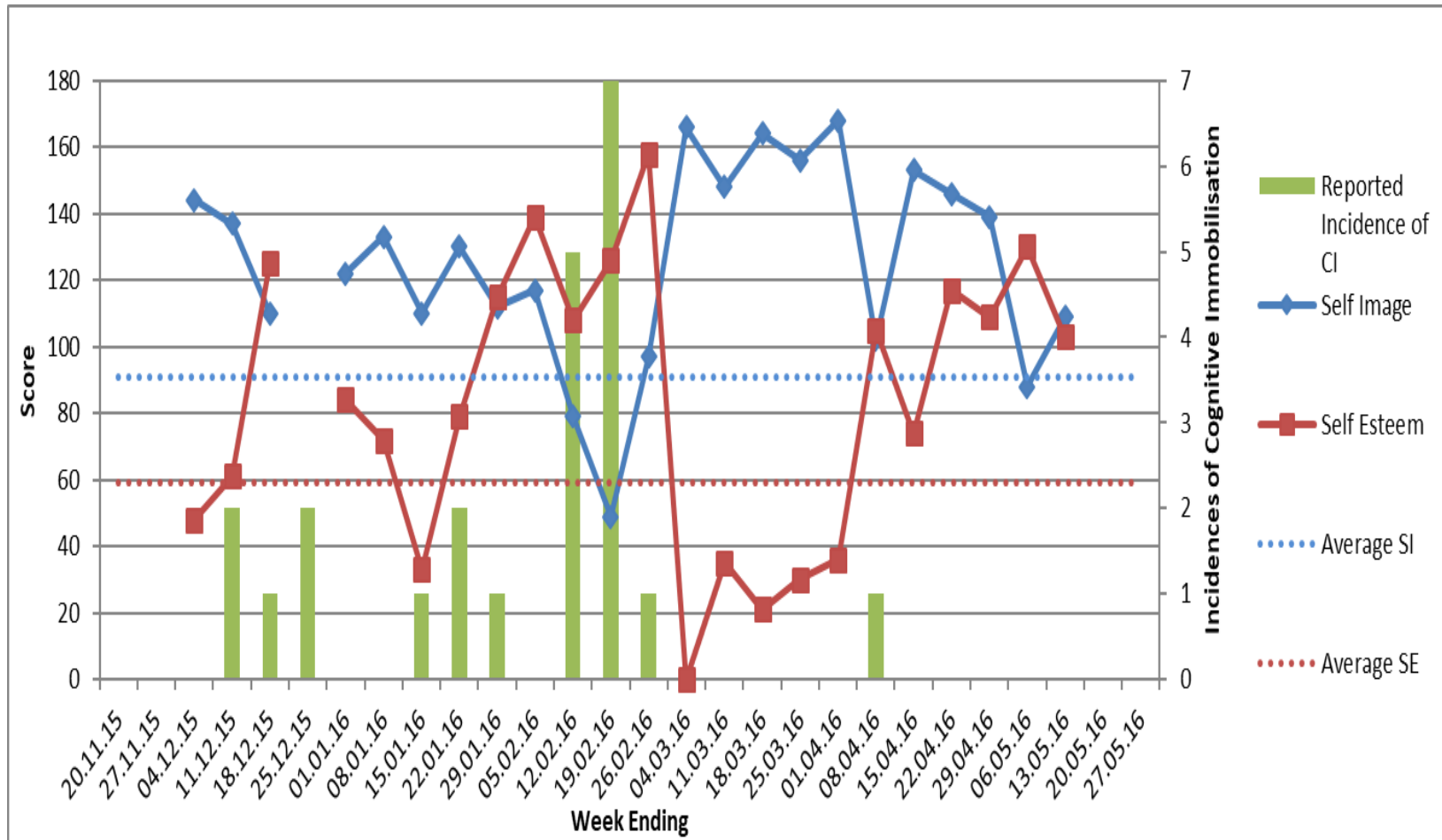
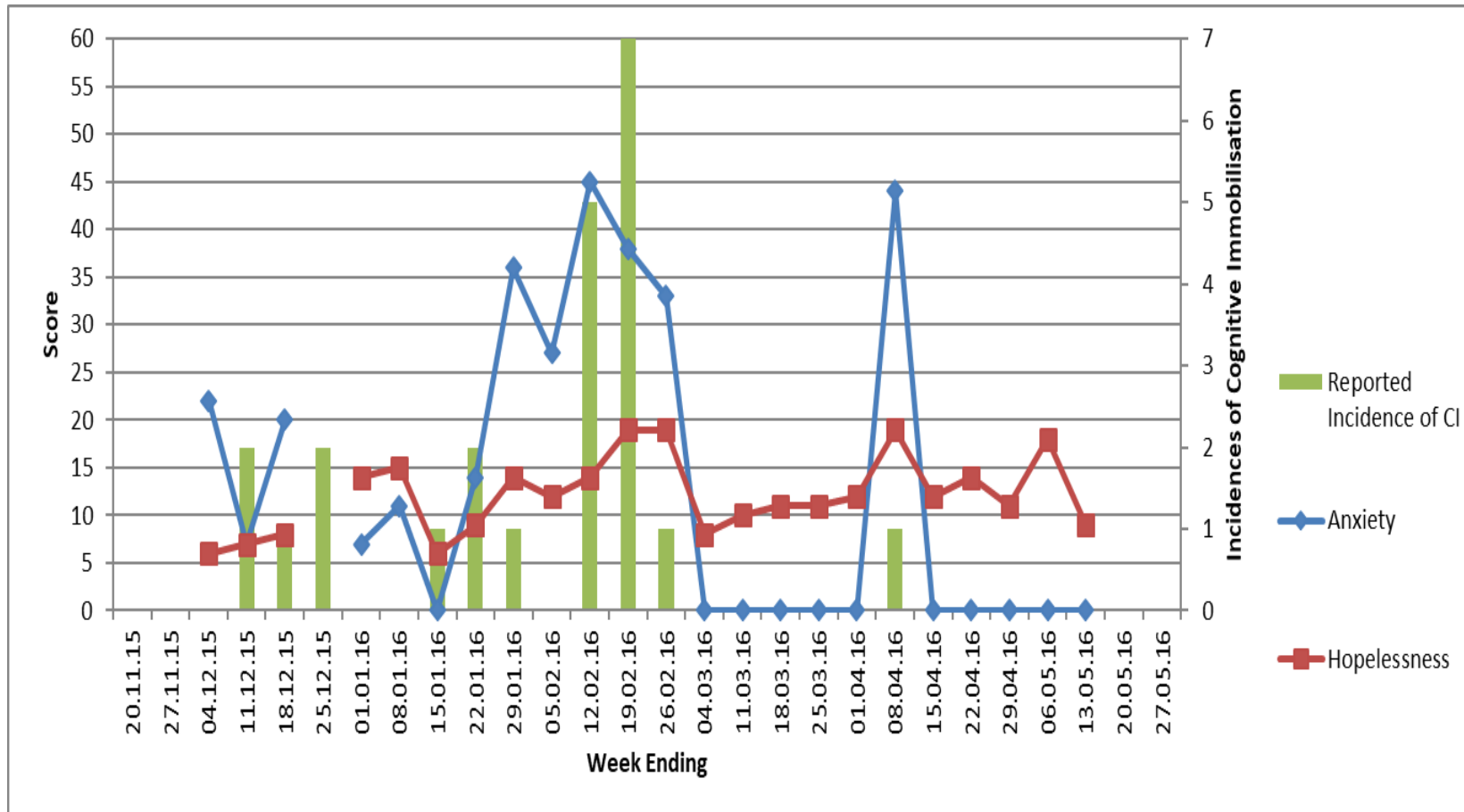


Figure 4.12 Brian - Beck Anxiety Inventory, Beck Hopelessness Scale and Frequency of Incidence of Cognitive Immobilisation



4.7.9 Pearl

Pearl's comments during monitoring interviews may suggest levels of hopelessness (BHI) consistently higher than for anxiety throughout the project.

Pearl stated she would never undertake any further study after completing this third year of her degree course, having previously mentioned she had thought of going on to join a Masters' course.

4.8 Discussion - Research Question 2(b)

From the analysis of these findings, the recommendations of Burden (2005; 2008), Carroll and Iles (2006), Pollak (2005; 2009) and Cameron (2016) for dyslexia support to be addressed from a holistic viewpoint would appear to be justified. Improvement in the efficacy of such support should result from including provision for the fluctuating emotional status of dyslexic HE students, in conjunction with providing for their study skills needs.

Although no consistent unexpected links between incidences of cognitive immobilisation and fluctuating levels of self-image and self-esteem were evident during the preliminary analysis of this data, all the participants described gaining positive advantage from the regular exercise of examining their feelings in these areas while completing the self-reporting assessment forms.

As previously indicated, hopelessness relates to depression rather than anxiety (Beck and Steer, 1993a) indicating the need for participants, particularly **Lucy, Judy, Brian** and **Pearl**, to seek timely professional help in this area (Riddick, et al., 1999). Interestingly, there were higher frequencies of incidences of CI reported by other participants who did not contemplate a study break, as can be

seen from Table 4.1. Questions arose as to whether these students might have avoided the need for a study break had their emotional status been noted, monitored and appropriate intervention been offered to them. Such monitoring with offers of appropriate support may also serve to reduce the University's attrition rates, particularly among dyslexic students.

In view of the emergence of the significance of locus of control within this project, strategies aimed at helping dyslexic HE students to change to an internal locus of control should be explored with a view to their inclusion in specialist dyslexia support interventions. Further research, with a larger sample following this avenue, could also conceivably indicate reliable criteria which may prove useful for predicting incidences of cognitive immobilisation and critical links with Self-image, self-esteem, anxiety and hopelessness.

4.9 Research Question 3(a)

What strategies, if any, for coping with cognitive immobilisation are used by dyslexic HE students and how efficient do they perceive them to be in managing incidences of cognitive immobilisation - self-devised?

4.9.1 Evaluation of self-devised coping strategies used by dyslexic HE students from the survey

A full list of coping strategies described as effective in overcome incidences of cognitive immobilisation by 33 of the 40 survey respondents is given in Appendix G. By far the most popular coping strategy was '*take time out*' for 12 respondents, whose comments included:

"My method is taking a small break when I experience 'freeze-up' and trying again in a short while. It does not always work."

"If I start feeling bad, I'll take a break."

The next popular strategy mentioned by eight respondents was ‘*allow more time/apply for extension*’, with one respondent’s recommendation being

“To cope with this I make sure that I start coursework (sic) or essays around 6 weeks in advance so that if I do ‘freeze up’ I still have plenty of time to get my work done.”

Seven respondents advocated ‘*support*’ from sources including a Talk Therapy referral by a GP; talking through work with family and academic support; using specialist software and ‘asking for my work to be assessed as I go’.

Respondents’ evaluations of the effectiveness of 1:1 Specialist Study Skills Support, taken from their comments in survey question 17, were mixed, with some advocating the support

“Having support definitely helps me cope with stress as I can discuss any issues”,

and

“Having effective support ahead of these big and often daunting hurdles (presentations, seminars, exams) is far more useful than damage control afterwards”;

whereas the support offered as a result of their needs assessment was not always considered beneficial

“I had support last year and it didn’t help me so im (sic) not bothering this year”.

Several survey respondents and participants in the latter phase of the research project shared the view that the arrangements for specialist dyslexia support were often delayed at the University, leaving some dyslexic HE students without support, sometimes for a year or more. As Scott (2004, 236) pointed out,

“Dyslexic students need quick support. There is a ‘Matthew Effect’ at university, too, and they can fall faster and harder than other students.”

The ‘Matthew Effect’ refers to the common adage that the rich get richer and the poor get poorer, implying that dyslexic HE students who are already disadvantaged without adequate specialist support, are likely to fare even worse without it as their academic career progresses.

Sadly, two survey respondents could recommend no successful coping strategies:

“No there is no amount of planning when it happens, the mind just goes blank and there is no recovering from it.”

and

“Not really, I just have the panic attacks then some how (sic) carry on.”

Other strategies recommended by survey respondents for avoiding or coping with incidences of CI included ‘*organisation/planning*’; ‘*notetaking/recording lectures*’ and ‘*regular practice*’, with a few respondents reporting success with ‘*deep breathing exercise*’; ‘*Mindfulness*’; ‘*positive self-talk*’ and ‘*playing music*’. It is interesting to note that all of these except ‘*regular practice*’ appear on the lists of coping strategies found to be successful in the management of cognitive immobilisation at the end of the monitoring phase of the project.

4.9.2 Evaluation of self-devised coping strategies used by the participants

A full list of coping strategies currently used by the 13 participants, together with their perceived success in helping to overcome incidences of cognitive immobilisation is given in Appendix J. The most frequently mentioned coping strategies are given in Table 4.6 below.

Table 4.6 Most frequently reported coping strategies used by participants and their effectiveness

Coping Strategy	Description	How many used it successfully	How many used it unsuccessfully
Walk away	Participants take time out from a stressful situation and walk away from it temporarily	11	0
Tinted lenses/ coloured paper	Participants wear glasses with tinted lenses or use coloured paper/ overlays to overcome visual stress	8	0
Listen to music	Use of personal stereos to listen to music to reduce levels of stress/anxiety	7	0
1:1 specialist support	Participants' evaluation of the Specialist 1:1 Study Skills support offered to them	7	6
Stress Ball	Participants "twiddle" with jewellery to alleviate their need to fidget	4	0

The most popular strategy identified was 'walk away' which was successfully used by 11 participants.

"If I freeze up I will walk away." (Angela)

"I... like... sit in the cemetery up the road and sit listening to heavy metal and sobbing. No one takes any notice because they think I am crying for someone who's died." (Carolyn)

The second most popular strategy related to eight participants with visual disturbances wearing glasses with tinted lenses and using coloured paper/overlays when working. Most commented, however, that despite their needs assessment report recommending the use of coloured paper they rarely, if ever, received handouts on coloured paper and were not supplied with correct paper to print out resources from Blackboard (University Intranet Service).

Seven participants successfully used personal stereos to listen to music to reduce levels of stress and anxiety.

Of the participants who reported trying 1:1 specialist support, six reported it was unsuccessful and they did not continue with it, whereas seven were pleased with the support they received.

4.10 Research Question 3(b)

What strategies, if any, for coping with cognitive immobilisation are used by dyslexic HE students and how efficient do they perceive them to be in managing incidences of cognitive immobilisation - proposed by Specialist Dyslexia Support Tutors?

In addition to the study skills tuition usually informed by recommendations from each dyslexic student's diagnostic assessment report, the Specialist Dyslexia Support Tutors shared other coping strategies they had found to be effective in reducing their students' risk of CI. All six tutors recommended 'stress-busting' techniques such as '*regular exercise*'; '*relaxation using yoga or meditation*'; '*eating well*'; '*talking openly to trusted friends and family*' and '*keeping a stress diary*'. One of the tutors regularly develops the '*stress diary*' strategy further with a few of her students by suggesting they try to analyse what stresses them about a situation by mind mapping the various components of the situation, to enable them to reflect more efficiently on options available to deal with it. Three

of the tutors reported regular successes when students '*walk away*' from the work or situation that is causing them to increase their stress and anxiety levels. As previously observed, '*Walk away*' and '*listen to music*' are both avoidance strategies, effected by removing oneself from the stressful situation (Kremer et al. 2012), with the accompanying risk of entering a vicious circle of avoidance which can have the opposite effect to that originally intended (see Figure 3.2).

4.11 Research Question 3(c)

What other coping strategies employed in disciplines outside education in the management of a very similar phenomenon introduced during the project were trialled by the participants and how efficient do they perceive them to be in managing incidences of cognitive immobilisation?

Information on the coping strategies introduced to participants by the researcher during this project was outlined in the overview in the previous chapter. A full evaluation of coping strategies trialled by the participants, together with their evaluation of their success appears in Appendix K, with an outline of the more frequently trialled strategies in Table 4.7 below. All participants received descriptions of, and explanations for, a variety of coping strategy styles and some participants rejected strategies outright without trying them, deeming them unsuitable to their tastes/needs, as they were free to choose. Further guidance and support with any of the strategies presented was available from the researcher during the regular 1:1 interviews/monitoring meetings, as requested by individual participants.

Table 4.7 Most frequently reported coping strategies from the intervention programme used by participants and their effectiveness

Coping Strategy	Description	How many used it successfully	How many used it unsuccessfully
Opportunity to meet and talk regularly	Participants find regular meetings with Researcher a therapeutic way of “getting things off their chest”	10	0
Exam Techniques	Exam and revision techniques to encourage Participants to achieve automaticity in accurate recall from long term memory, so avoiding ‘paralysis-by-analysis’ when engaging the working memory	8	0
Meditation/ Mindfulness	Becoming more aware of the present moment, calming down thoughts and using a choice of meditation techniques	6	1
Controlled Breathing	Breathing Square: breathe in for a count of 6; hold breath for a count of 6; breathe out for a count of 6; hold breath for a count of 6, repeated as necessary	6	1
Visualisation	Creating visual mental imagery of possible situations to alter linked emotions or feelings, with the aim to reduce such as anxiety or low self-esteem	5	0

Planning work	Planning before beginning to write first draft	5	0
Dictaphone	Recording lectures so Participants can relax and take in lecture content without having to worry about missing anything while they are taking notes	5	0
Aromatherapy	Essential oils are used eg Lavender to aid sleep, Rosemary to enhance memory when revising	4	0

The three coping strategies which proved successful for most of the participants were '*the opportunity to meet and talk regularly*' (10) with the researcher; '*exam and revision techniques*' (7) and '*controlled breathing*' (6). The participants who claimed benefit from regular informal meetings described them as a therapeutic way of 'getting things off their chest'. This outcome should be compared to that of the three participants who were referred for '*counselling*' through the University Wellbeing Centre, two of whom reported unsuccessful outcomes after waiting for several weeks for appointments. The six participants who identified '*controlled breathing*' as an effective way to manage incidences of cognitive immobilisation considered themselves to suffer from high levels of stress and anxiety. These participants were pleased to have discovered an effective coping strategy that they could apply themselves without having to draw attention to the fact that they were dyslexic and also could use whenever necessary instead of having to wait for an appointment to see someone.

Of the eight participants who successfully used '*exam and revision techniques*' which they had not previously tried, some of them stated they were currently attending sessions with Specialist Dyslexia Support Tutors but these particular strategies had not been mentioned during their support sessions. Five participants who had never previously tried the strategies found '*meditation/mindfulness*' techniques to be very successful, not only in coping during incidences of CI but also in avoiding it when they used the strategies when first recognising their own triggers for CI were in evidence. **Paula** commented that she was

"... just getting the hang of it now – it's very therapeutic, because you know when you were talking about growing the roots and stuff, it was, like, peaceful in my head".

Referring to participants using the orange glass nuggets used during the TOMAL-2 assessments, **Paula** now uses them in place of a stress ball,

"If I get stressed I get very, very fidgety and one thing that did help me was those 2 pebbles you gave me – I keep playing around with them and that helps me at the moment".

Most participants appeared to show improvements in their lowered anxiety levels and some showed reduced frequency of incidences of cognitive immobilisation, notably **Lucy, Alan** and **Wendy**.

4.12 Discussion - Research Question 3

All the participants described experiencing advantages gained during this project, most of which arose during, or as a result of, having the opportunity to meet and talk regularly with me on a 1:1 basis (Scott, 2004). They all described developing a sharper awareness of their fluctuations in aspects of their

emotional status evaluated using the SIP-A, BAI and BHS self-reporting forms. Discussions within this safe environment appeared to allow the participants to reflect on what they were discovering (or rediscovering) about themselves and to identify by trial and error new ways of coping with their individual weaknesses, both academic and emotional.

As *'the opportunity to meet and talk regularly'* was the most popular new coping strategy identified by most of the participants, it can be identified as providing ideal opportunities to develop positive self-talk. Several of the participants have said,

"I hear you saying... and I remember to do it!"

These participants were referring to instructions for coping strategies aimed to help their management of incidences of cognitive immobilisation given to them during the regular 1:1 interview/monitoring meetings. The self-talk developed during these meetings is defined by Kremer et al (2012, 109) as "...a cognitive self-regulatory strategy", which refers to internalised speech which has the effect of 'thought stopping' when an individual is 'overthinking', possibly leading to cognitive overload and eventually cognitive immobilisation.

The successful use of techniques involving Meditation/ Mindfulness, Controlled Breathing, Visualisation and the use of Aromatherapy oils and candles are all excellent practices which can be used by the participants as they are needed, without the necessity to involve anyone else. This seemed to suit participants who were reluctant to seek help from the University Counselling Service or GPs at the Health Centre, giving an added sense of autonomy.

Planning work before beginning a written assignment, Exam Techniques and using a Dictaphone to record lectures and seminars are all coping strategies which would normally be included in the specialist dyslexia support delivered by Specialist Dyslexia Support Tutors. However, for various reasons, some participants were not receiving 1:1 specialist support or if they were, the particular strategies the participants found useful had not yet been introduced within their support programme. This draws attention to the need for support to match the dyslexic HE students' course requirements (since they do not all have exams at the same time of the academic year), in addition to a system of quality control for the support offered to dyslexic HE students.

4.13 Research Question 4

How may these findings be best used to inform effective coping strategies to overcome cognitive immobilisation in dyslexic HE students?

Since TOMAL-2 is currently used, albeit only in part, within the diagnostic assessment for dyslexia for HE students wishing to apply for a DSA, it is suggested that the whole profile produced from this assessment may afford valuable insights into the likelihood of higher rates of incidences of CI in certain dyslexic students, although more research would be needed in this area to fully support this claim. This research project is the first of its kind to consider all aspects, empirical and qualitative, of the assessment of aspects of memory, fluctuating emotional status and the links these may have to cognitive immobilisation as experienced by dyslexic HE students.

The findings from this research project suggest intervention should be included in the study skills dyslexia support programme, addressing low abilities in the areas of memory relating to those identified within the Learning Index and the

Free Recall Index. Findings may be interpreted as suggesting that closer attention should be taken in matching the introduction of successful coping strategies to common triggers and appropriate timings within the dyslexic HE student's academic work schedule. Examples of these may include the introduction of exam/ revision techniques earlier in the academic year before exams start. Also, more effective planning including the use of individualised GANTT charts should be covered earlier within the study skills programme to avoid anxiety levels rising as submission dates are approached.

By so addressing triggers for raised anxiety, the possibility of learned helplessness (hopelessness) becoming a state-trait among dyslexic HE students may be avoided. As these findings may suggest, addressing individual triggers may reduce the likelihood of dyslexic HE students needing to take a study break, or indeed fail to complete their academic course.

The most popular coping strategy introduced to the participants in this research project was having the facility to talk things over regularly. While the University Counselling Service is available to all students, the provision would seem to be inadequate for the demand, judging from the long waiting list for appointments encountered by the participants who have contacted the service. It should also be noted that not all those recommended to apply to the service are willing to do so; likewise, not all those referred to the GPs at the University Health Centre decide to attend.

1:1 support should include/incorporate some mentoring which is treated as separate at the moment, although some needs assessments stipulate the provision of a mentor in addition to a specialist study skills tutor for certain students. Sometimes the two types of support are provided by different people

over the same timeframe, which some dyslexic HE students have suggested is not of their choice, implying they prefer the same person for all their support needs. Unfortunately, this is not always possible as some Specialist Dyslexia Support Tutors are qualified to deliver Study Skills support but not mentoring support. This may be remedied with the offer of appropriate training for support tutors.

Since the University already runs drop-in support for all students for academic writing, study skills and Maths and Stats Help (MASH) in the University library, these provisions could be modified to become more inclusive and accessible to dyslexic students.

4.14 Discussion - Research Question 4

Inclusion of counselling-type support within the needs assessment provision could be made available within the 1:1 framework or provided in the form of regular drop-in meeting groups, possibly run by the Students' Union or the University Wellbeing Centre. Garvey et al. (2018, 99) describe several foci for mentoring in education, one of which "...focuses on pastoral relationships between staff and learners and sometimes between peers in schools".

The findings of this study agree with those of Cameron (2016, 223) who urged that

"...paying attention to the everyday experiences of students with the dyslexia label is as important as knowledge of cognitive differences in the drive to create a more equitable learning environment in higher education"

Noting and monitoring signs of anxiety and helplessness in dyslexic HE students, perhaps using criteria such as attendance, behaviour, submission of

work to discover those who may be at risk, are likely to ensure they are offered adequate, timely and appropriate intervention and support. All students at the University are assigned a Personal Tutor, whom a student may contact for advice and guidance. Dyslexic students are also assigned a named contact in the University Wellbeing Centre, who will help with any support relating to dyslexia.

Whichever support the dyslexic HE student decides to accept, the provider should heed Cooper's (2009) identification of the uniqueness of each dyslexic individual's profile, avoiding a Procrustean attitude that 'one size should fit all'. Instead, the findings from this research project should be used as a basis for pedagogical change towards better inclusion (Galaburda, 2016). The dyslexic HE student has to contend with many different interpretations of the 'label' (Cameron and Billington, 2015; Pollak, 2005).

The findings of this research project have also drawn attention to the importance of a dyslexic HE student fostering an internal locus of control as a means of reducing escalation of levels of anxiety and hopelessness. Achieving and maintaining lower levels of anxiety and hopelessness may only be achieved for dyslexic HE students who operate under an internal locus of control when they can set aside past negative experiences and begin to attribute any successes to their own efforts, encouraged by their support staff, lecturers and tutors (Sousa, 2016).

In the interests of furthering inclusive education at the University, this enquiry could be explored differently in a future project which included a control group of non-dyslexic students. Repeating this project with the addition of a non-dyslexic control group in order to facilitate a comparative study (Cohen et al., 2007;

Creswell, 2014), may illuminate a more empirical representation of the increased frequency of incidences of cognitive immobility experienced by dyslexic HE students over that of their non-dyslexic peers.

4.15 Conclusion

It must be accepted that findings from such a small-scale enquiry cannot realistically be generalised within the dyslexic HE student population, as Dane (2011, 194) opined,

“...the major purpose of most experiments is to demonstrate that the cause-effect relationship *can* occur, not that it always occurs”.

However, I anticipate outcomes of this research project will give rise to at least some of the multi-layered educational innovation described by James and Pollard (2006) as ripples caused by a pebble thrown into a pond, progressing from changes at classroom level and eventually affecting local/national policy. The impact of my findings bringing about changes in dyslexia support for HE students would represent the first ripple, which in turn will hopefully activate further widening ripples informing tutors' knowledge and skills; instigating change in professional training and development, or even structure/cultural changes at institutional level and beyond.

This chapter began by reiterating the profiles of the samples used for the various phases of this research project. The quantitative and qualitative data gathered from survey respondents, Specialist Dyslexia Support Tutors and participants who volunteered to complete the latter part of the enquiry, were addressed to each of the research questions. In order to avoid repetition and to provide clarity for the reader, relevant discussions followed an analysis of each phase of the findings, relating to each specific research question. Preliminary

conclusions drawn from exploration of the findings related to recommendations for implementation of improvements in the support of dyslexic HE students at the University were outlined and will be revisited in more practical terms in the following chapter.

CHAPTER 5 CONCLUSION AND RECOMMENDATIONS

5.1 Initial overview

In pursuit of furthering past research findings concerned with exploring the efficacy of support to enable dyslexic HE students to achieve their academic goals, I set out to examine the negative impact of these students experiencing cognitive immobilisation during their studies. Having first established evidence from dyslexic HE students and Specialist Dyslexia Support Tutors of the existence of cognitive immobilisation, the principal aims of this project were

- to discover the extent of the occurrence of cognitive immobilisation in HE students who are dyslexic in one UK university and what triggers this phenomenon;
- to explore the relationship between this occurrence, individual variations in processing capacity relating to working memory/long term memory interactions and ipsative measurements of fluctuating emotional status;
- to investigate the efficacy of possible coping strategies, including those which have been employed successfully to manage similar phenomena in disciplines outside education;
- to use the findings of this inquiry for the improvement of specialist support for dyslexic HE students.

On first impressions it may seem that this inquiry has attempted to follow too many seemingly disparate strands within this research project. However, in justifying my choices I have to emphasise that my praxis requires that I not only identify the nature and possible causes of issues, adversely affecting the academic attainments of the dyslexic HE students I am entrusted to support, but

having done so, I then proceed to devise workable solutions to ameliorate their resultant problems.

5.2 Overall conclusions

As demonstrated in the previous chapter, by pursuing my research from different angles, simultaneously involving quantitative assessment and qualitative enquiry, I have been able to demonstrate the possible significance and triggers of cognitive immobilisation as experienced by dyslexic HE students, and its potential risks relating to the likelihood of their missing submission dates, taking study breaks or even deciding not to complete their academic studies. The possible significant association between dyslexic HE students' locus of control (internal or external) and their decisions to take study breaks or not to complete their course was also discovered during reflexive analysis of data collected from the BHS self-reporting assessments and verbatim reports from participants' regular 1:1 monitoring meetings.

Researchers are divided regarding the effects on the dyslexic student in HE of being 'labelled' after being identified through diagnostic assessment (Elliot and Grigorenko, 2014). Many researchers have found the label as seen to stigmatise the dyslexic individual, affecting their overall self-concept, with the risk of feelings of learned helplessness and depression (Hellendoorn and Ruijsenaars, 2000; Burden, 2005, 2008; Corkett et al., 2008; Griffin and Pollak, 2009; Yeager et al., 2014; Alexander-Passe, 2015) but the majority of findings have been derived from qualitative data alone, as opposed to the mixed methods approach of this inquiry.

The aims for this project were crystallised into the research questions set out at the end of Chapter 2 and the research methods employed, set out in Chapter 3, have appeared to provide appropriate data to address all the research questions, within the inevitable limitations of a small-scale inquiry. Although this was a small-scale project, subject to a timeframe of one academic year, the small samples of dyslexic HE students varied. Of the survey respondents (n=40), 8 (20%) were male and 32 (80%) female; 5 (12.5%) in their first year, 14 (35%) in their second year, 14 (35%) in their third year and 7 (18%) were postgraduates. 37 (92.5%) were full-time students and 3 (7.5%) part-time. The academic profiles of the participants (n=13) in the main, final phase of the project included 4 male and 9 female; 2 were completing their first year at the university, 5 were completing their second year, 4 were completing their third year and 2 were postgraduate students. All except one of the 13 were full-time students.

Respondents to the online survey and participants of the main project all recognised the description of cognitive immobilisation, acknowledging experiencing the phenomenon as having a negative impact on dyslexic HE students' academic performance. Only one survey respondent reported not experiencing cognitive immobilisation during his current year as a student at the University, which he attributed to the efficacy of the coping strategies he had adopted in response to his previous issues in this area. However, he acknowledged he had been adversely affected by cognitive immobilisation in his previous year. The Specialist Dyslexia Support Tutors interviewed also recognised the effects of cognitive immobilisation having been experienced by dyslexic HE students that they have supported and offered details of successful

coping strategies that they had provided to their students in the past. Survey respondents, participants and Specialist Dyslexia Support Tutors all agreed that they believed dyslexic HE students experienced cognitive immobilisation more frequently than their non-dyslexic peers. Having discovered this evidence, the findings for the whole enquiry can be represented in Fig. 5.1 shown below.

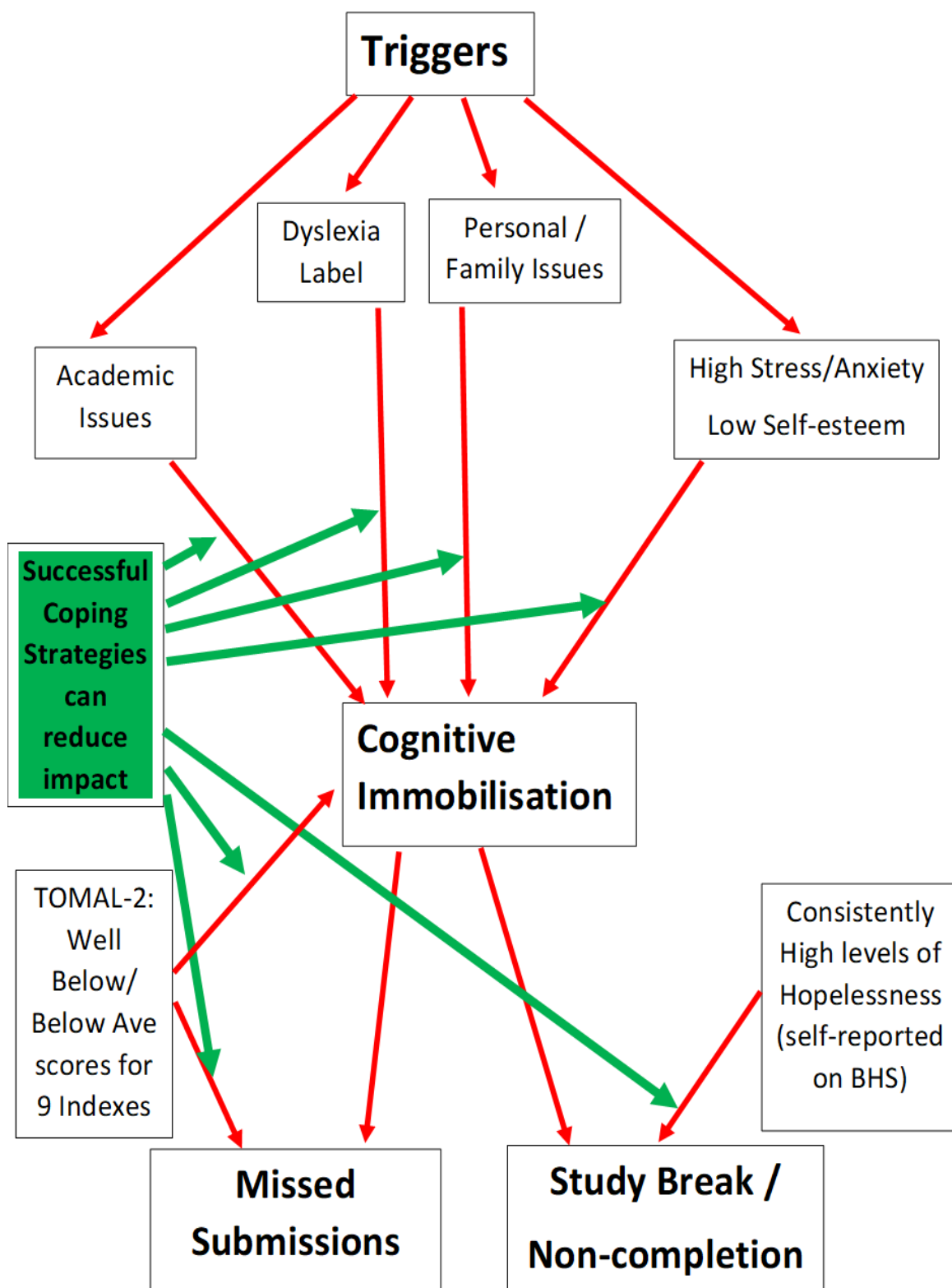


Figure 5.1 Model for identifying and supporting dyslexic HE students experiencing cognitive immobilisation

Figure 5.1 shows the four main themes for the triggers leading to cognitive immobilisation described by the participants and mirrored in the comments made by the Specialist Dyslexia Support Tutors and some of the survey respondents. The main triggers contributing to cognitive immobilisation identified during this project fell within the categories of *Academic issues*; *Dyslexia label*; *Personal/family issues* and *High stress/anxiety with low self-esteem*. Participants of this project whose TOMAL-2 profiles evidenced well below or below average scores for all nine Composite Indexes also reported higher frequencies of experiences of cognitive immobilisation, suggesting such a profile may also act as a contributory factor.

Experiences of cognitive immobilisation appeared to be strongly linked to participants missing submission deadlines for assignments when coupled with TOMAL-2 profiles evidencing well below or below average scores for all nine Composite Indexes. However, experiences of cognitive immobilisation were found to be strongly linked to participants taking a study break or deciding not to complete their course of study when these participants had consistently self-recorded higher levels of hopelessness than levels of anxiety. Sustained levels of hopelessness, suggesting an external locus of control, may indicate the development of a more permanent state of learned helplessness, suggesting such individuals may have concluded they are unable to continue with their studies. Analysis of data collected from dyslexic HE students participating in this project suggested a highly significant (<0.01) association between external locus of control and the decision to take a study break or not to complete their course. Figure 5.1 also indicates (green arrows) suggested junctures within the identified scheme for proposed intervention by the introduction of successful coping strategies, tailored to the individual needs of dyslexic HE students.

Intervention could be initially directed to reducing the frequency of experiencing cognitive immobilisation by addressing triggering issues. Additional intervention could be aimed at tackling issues relating to possible weaknesses in aspects of the memory system, indicated by well below/below average Standard Scores obtained during the TOMAL-2 assessment.

From the survey, 12 (30%) respondents reported missing a submission deadline because of experiencing 'freezing up' (cognitive immobilisation) and 28 (70%) respondents reported that they had never missed a submission deadline for this reason. However, 21 (52.5%) respondents reported having taken a study break as a direct result of experiencing 'freezing up' whereas 19 (47.5%) respondents reported they did not. On further statistical analysis, these data, together with information relating to respondents' attitudes to their dyslexia label and perceived stress levels were found to be strongly associated to the respondents' reported experiences of cognitive immobilisation. The inclusion of two non-mandatory questions included in the online survey provided some further insights into respondents' perceived triggers for cognitive immobilisation, as well as general comments on their evaluations of the success of coping strategies they had tried.

13 respondents volunteered to complete the main phase of the project. I undertook diagnostic assessments with these participants using TOMAL-2 to obtain individual comprehensive profiles of their memory skills. At the end of the project it was discovered that the three participants whose TOMAL-2 profiles showed scores predominantly below average and/or well below average for all the nine Composite Indexes were the participants who reported the highest frequencies of experiencing cognitive immobilisation. This finding may be interpreted as suggesting that using the full TOMAL-2 assessment may be

useful in predicting those dyslexic HE students who may be more at risk of cognitive immobilisation. Currently, only the Attention/Concentration Index (ACI) of TOMAL-2 is used during the diagnostic assessment of dyslexia for HE students applying for a Disabled Students' Allowance. Factors likely to affect the accuracy of relevant subtest scores as a reflection of individual dyslexic HE students' actual performance have been explored previously, however the value of data gathered is acknowledged in terms of individuals' profiles and trends revealed for further analysis. Five of the other participants also scored below average for the Attention/Concentration Index although their frequency of experiencing cognitive immobilisation was lower than that of the other participants with a similar score, suggesting strengths in other aspects of memory may serve to bootstrap individual weaknesses. Only one participant reported experiencing no incidents of cognitive immobilisation, despite having done so in his previous academic year at the university, and it should be noted that this participant's score for the Attention/Concentration Index was below average (see Table 4.4).

Further statistical analysis of TOMAL-2 scores suggested that the correlations of Free Recall Index (FRI) and Learning Index (LI) scores with the reported frequency of incidence of cognitive immobilisation revealed were both highly significant ($p < 0.01$). These findings may be taken to suggest that these scores may also prove useful predictors of the likelihood of dyslexic HE students experiencing cognitive immobilisation.

I also carried out the initial assessments for self-esteem/self-image (SIPS-AD); anxiety (BAI) and Hopelessness (BHS) with the 13 participants at the start of this main phase of the project. These assessments provided an initial baseline score and allowed me to instruct the participants how they should complete the

short self-reporting forms for each assessment. The participants were asked to complete these forms weekly and submit them to me at their two/three weekly 1:1 interview/monitoring meeting, together with their diarised notes of incidences of cognitive immobilisation. I compiled and maintained graphs charting fluctuations in participants' scores, relating to incidences of cognitive immobilisation throughout this research phase until May 2016. These graphs clearly mapped fluctuating emotional status relating directly to incidences of cognitive immobilisation, notably occurring when participants had also reported particular events as likely triggers. It was particularly noteworthy that although raised anxiety levels tended to trigger cognitive immobilisation, often coinciding with late submissions of written work, taking study breaks/non-completion of courses was associated with levels of hopelessness increasing to levels above co-occurring levels of anxiety, associated with an external locus of control. Since this inquiry appeared to be the first to identify the significance of these links, further research in this area may be considered advantageous. The merits of tracking fluctuations in self-esteem/self-image, anxiety and hopelessness by way of maintaining easily interpreted, graphical representations should be recognised for both the individual dyslexic HE student and Specialist Dyslexia Support Tutors. Participants had repeatedly commented on how monitoring their emotional status in this way made them more mindful of how they were feeling and what situations had adverse effects on them individually. Using the assessments employed during the current inquiry, emotional fluctuations could readily be scrutinised to recognise early indications for changes in intervention, including signposting students to the University Counselling Service or Health Centre.

Qualitative data gathered from the verbatim transcripts of the 1:1 semi-structured interviews/monitoring meetings with the 13 participants, revealed a wealth of information relating to their perceived triggers for cognitive immobilisation and their appraisals of the success of coping strategies they had tested. Triggers for cognitive immobilisation identified by the participants fell within the three main areas of *academic issues*, *links to the dyslexia 'label'* and *personal/family issues* (see Appendix H). Successful coping strategies included those already used by the participants, such as *'walking away'*, *'listening to music'*, *'wearing tinted lenses/using coloured overlays'* and *'attending 1:1 specialist support'*.

5.3 Recommendations for developing support for dyslexic HE students

New techniques for coping strategies for managing incidences of cognitive immobilisation which were introduced from disciplines outside education were trialled and evaluated as being successful for some participants, included *'opportunity to meet and talk regularly'*, *'meditation/mindfulness'*, *'controlled breathing'* and *'exam techniques'*. These coping strategies, described in Chapter 4 and Appendices J and K, were very well received.

The findings of Carroll and Iles (2006); Burden (2005; 2008); Pollak (2005) and Griffin and Pollak (2009), which all exhorted the inclusion of emotional fluctuations within structured intervention support for dyslexic student, have served to seed this enquiry. I believe my findings have enabled me to expand the scope of my 'bunch of keys' used to 'unlock' academic challenges faced by dyslexic HE students, having extended the range of coping strategies I can offer, which can be further tweaked to become a better fit for the needs of the individual student.

Also, as a result of the findings of the current inquiry, the introduction of an in-house support system is strongly recommended, using specialist knowledge already available from the University's existing academic staff to be accessed and applied as transferrable skills within a quality-controlled inclusion programme – e.g. BRAIN-HE (Griffin and Pollak, 2009). However, the establishment of a straightforward protocol for dyslexic students to report any issues they identify as impeding their academic progress would be advantageous to the students, academic and support staff alike. Dyslexic HE students are presently also assigned to a Support Advisor within the Wellbeing Centre in addition to a Specialist Dyslexia Support Tutor. However, from comments made by participants during the interviews/monitoring meetings, dyslexic students are not always aware of this or prefer not to contact the Wellbeing Centre for immediate problems, since students have experienced delays in securing appointments, particularly for the University Counselling Service for which students have reported a six-week delay. The present limited provision of the University Counselling Service could be augmented by training and allowing Specialist Dyslexia Support Tutors to use the self-reporting forms with dyslexic students who they feel may be at risk of approaching critical anxiety levels, suggesting likelihood of experiencing cognitive immobilisation. This may assist dyslexic students who present as reluctant to seek help initially, as was found in this project.

Looking to the future, the inclusion of counselling-type support within the needs assessment provision could be made available within the 1:1 framework or provided in the form of regular self-help drop-in groups, possibly run by the Students' Union or the University Wellbeing Centre. Such groups could also be allied to study skills support facilities already offered in the University Library.

Noting and monitoring signs of anxiety and helplessness in dyslexic HE students, perhaps using criteria such as attendance, behaviour or late submission of work, to discover those who may be at risk of the effects of cognitive immobilisation may prompt timely and appropriate intervention and support. Efficient monitoring of individual students could be achieved by the coordinating and sharing of such information between academic/personal tutors and Specialist Dyslexia Support Tutors.

An in-house dedicated support department could be self-financing through the DSA funding as an alternative to having support provided through several agencies, as is the case currently. This would also have the added advantage of central quality control, governing the support offered to the students at this University. This proposed support department would also have access to experienced, qualified assessors for dyslexia, which would not necessarily have a cost implication to the University, as such individuals can all be freelance and contacted through the PATOSS tutor and assessor register. As Fullan (2007, 30) pointed out “Innovation is multidimensional” and I would advocate the application of an evolved support programme which also included dyslexia awareness training for academic tutors. Such awareness training should include the opportunity to clarify the valuable information already included in diagnostic assessment reports which are mandatory for dyslexic HE students in receipt of a DSA. As Chanock et al. observed as long ago as 2010, much of the information contained in these reports remains underutilised due to the lack of understanding on the parts of academic and support staff, and sometimes of the students themselves.

The University has expertise available within the departments of Sport Science, Business Studies, Performing Arts and Psychology which could be made

available for planning/CPD for academic and specialist support staff alike, at minimal cost to the University as this would be 'in-house'. Dyslexic HE students' academic performances negatively affected by late or missed submissions, re-sitting written exams and/or taking study breaks should be considered, as such disruptions inevitably cost such students extra in terms of time and money. Dyslexic HE students who leave courses without completing also add to the University's attrition rates. A specialist support programme with flexibility to allow it to be individually tailored, whilst subjected to formal quality control protocols throughout the University is likely to be advantageous to dyslexic students and to the University. A specialist dyslexia support programme developed to attract more dyslexic HE students to apply for the Disabled Student Allowance would also be of financial benefit to the University, as funds from the Higher Education Funding Council England (HEFCE) are available to the University for each of its students in receipt of a DSA.

5.4 Limitations of this project and recommendations for further research

To date, no other enquiry in this field has attempted to match formal assessment with the 'voices of the actors' in this way to substantiate the validity of the findings. It is, however, acknowledged that this was a small-scale project conducted and funded by myself as sole researcher, over one academic year in one UK university. Nevertheless, my primary aspiration is for my findings to be of sufficient interest for other researchers to take my ideas further in more extensive future studies, as well as applying my recommendations in the expansion of support for dyslexic HE students.

Undertaking this research project has afforded me the opportunity to expand the insights from my own experiences as a practitioner in my field of inclusion/educational neurodiversity, within ethical and academic boundaries at doctoral level. I have had the opportunity to develop an analytical understanding of wider perspectives on current practice (Macleod, 2006; Oliver and Barnes, 2012). However, during this inquiry I have had to overcome the temptation to follow the numerous intriguing avenues of research which emerged as the project proceeded. I have also learned the need for continuous reflection as the project progressed, being aware of any possible need to modify the direction of the inquiry, in response to emerging hitherto unforeseen premises.

The lack of centralised documentary records compiled by university student services departments relating to dyslexic students' uptake of study skills support, requests for extensions, study breaks, or non-completion of courses was surprising, irrespective of confidentiality issues. However, due to the very nature of dyslexia, I was overwhelmingly grateful to all the dyslexic students who so generously gave their time to support this enquiry, particularly the 13 participants. I acknowledge that they already spent far more time on their studies than their non-dyslexic peers.

Reflection on lessons learned from the pilot study served to crystallise the aims and clarify the design requirements of my proposed inquiry. The value put on reciprocity of information made possible throughout the whole project, identified by the piloting participants cannot but serve to minimise any inequalities of power between the researcher and the participants (Hollway & Jefferson, 2013). On considering the risk that "asking about anxiety, we produced the anxiety we are seeking to establish empirically..." (Hollway & Jefferson, 2013:35), all the

participants conveyed the opinion that their anxiety is always present, but they appreciated that this research project recognised that and aimed to address the issue. Throughout the project I anticipated that individual participants were likely to benefit from the opportunity to recognise trends through self-reporting in a journal and guided reflection on the effects of their fluctuating stress and anxiety levels on incidences of cognitive immobilisation. I regret the lack of opportunity to arrange a Focus Group meeting to conclude the project for those participants who intimated they may have attended such a meeting, in spite of their insistence on preserving their anonymity throughout. I was disappointed to miss the possibility to discover fresh views of the participants, relating to the intervention programme as they focused on shared (rather than individual) opinions (Matthews and Ross, 2010).

Knowledge gained from the literature referring to the identification and management of cognitive immobilisation in the fields of sport, performance, business and life coaching may be usefully integrated into the diagnostic assessment and management of fluctuating emotional status of dyslexic HE students. However, further research in these areas is urged.

This is the first project to explore the phenomenon of cognitive immobilisation as experienced by dyslexic HE students, in terms of assessed overall memory function and monitored fluctuations of emotional status, allowing for empirical and narrative data to be analysed, separately and together. It is acknowledged that findings from such a small-scale project cannot reasonably be generalised, but it is hoped that the patterns emerging from these findings will seed further, more extensive enquiries, while contributing to meta-analysis in this field of study.

APPENDIX A: Participant information sheet and Consent Form

Cognitive immobilisation in dyslexic HE students: Exploring links with aspects of memory and fluctuating emotional status, informing effective coping strategies

Thank you for completing the survey and for volunteering to continue to participate in this research project which will run from Oct 2015 to May/June 2016. On completing the research requirements you will be included in a draw to win ***** £150 Amazon gift voucher ***** at the end of the project.

Your eligibility to participate is dependent upon production of a current diagnostic assessment report for dyslexia. This report will not be retained or copied.

My research project will explore the way increased stress and anxiety can result in a dyslexic HE student entering a panic/stress loop that can leave him/her, literally, immobilized and unable to continue with their academic work.

I will endeavour to minimise the time commitment and disruption to your academic studies and hope you will gain benefit from the rest of the programme. I will meet you regularly on a 1:1 basis in the main university library at mutually agreed times.

I will undertake all assessments, interviews, meetings and the presentation of the intervention programme and you can contact me by text or email at any time during the project:

Ann Harris-Lock annharrislock@aol.com mobile: 078 999 666 80

Supervisor: Dr Carol Callinan, , School of Education, College of Social Sciences, University of Lincoln, Brayford Campus,
ccallinan@lincoln.ac.uk, 01522 837315

Research Plan

1. Assessments

You will be invited to undertake the following four assessments at the start of the project to provide baseline data and again at the endpoint:

Memory and Learning Profile (approx. 45 mins), using The Test of Memory and Learning (TOMAL-2) (Reynolds & Voress, 2007), referring to nine core indexes: Verbal Memory, Nonverbal Memory, Composite Memory, Delayed Recall, Attention/Concentration, Sequential Memory, Free Recall, Associative Recall and Learning;

Self-esteem (self-image) (approx. 10 mins), using The Self Image Profile for Adults (SIP-Adult) (Butler & Gasson, 2004);

Anxiety (approx. 5 mins), using The Beck Anxiety Inventory (BAI) (Beck & Steer, 1993);

Hopelessness (feelings about the future, loss of motivation and expectations) (approx. 5 mins), using The Beck Hopelessness Scale (BHS) (Beck & Steer, 1993);

2. Initial interview for all participants (30 - 45 mins)

Your initial assessment results will be available for discussion and you will be asked about how you think stress and anxiety may have affected your academic work in the past and/or currently. You will also be asked about any relevant coping strategies you might use.

3. Monitoring of emotional fluctuations

You will be given a notebook in which to record the date and a brief description of any experiences of cognitive immobilisation as they occur.

You will be asked to self-report weekly on your levels of self-esteem, anxiety and hopelessness by completing the relevant questionnaires for SIP-Adult (10 mins), BAI (5 mins) and BHS (5 mins) which will be provided in a folder, on the coloured paper of your choice.

You will be asked to meet briefly with me every 2 weeks (approx. 15 mins) to submit your self-assessments and discuss your progress. Extra, or longer, meetings can be arranged at your request.

You will be given a code to use for identification of your assessment papers, to preserve anonymity.

4. Intervention programme of new coping strategies

During the regular 1:1 meetings you will be offered a range of coping strategies which have been used successfully in areas outside education (e.g. sport, performance arts, business coaching) and are recognised as being effective in

the management of phenomena very similar to the cognitive immobilisation you experience.

After each meeting, you will receive printed notes on any coping strategies introduced during that session that you would like to try. The notes will be provided in your preferred style.

You need not use any of the coping strategies in your academic studies if you are not comfortable with them. You can contact me at any time between regular monitoring meetings to discuss or clarify any of the material presented.

Findings arising from data collected during this project will be used to inform the development of existing dyslexia support offered to dyslexic HE students in the University.

Your permission will be sought to record interviews and meetings. You will be given the opportunity to view transcripts and edit your data before analysis.

The university will not be named. Your name will not appear on any publicly accessible documents so no one reading the published work can attribute quotations to you. All data will be anonymised.

I will store the data, including recordings, on a password secured computer and only I and my supervisors will have access to it.

You have volunteered to participate in this research project but you can withdraw at any time during the project by informing me that you wish to do so (annharrislock@aol.com). I would then destroy any data I had relating to you. However, if you decide to withdraw before the project is completed, you would no longer be eligible to take part in the prize draw for the £150 Amazon gift voucher.

The project is expected to be completed by September 2016 and only anonymised data will be kept securely for up to 5 years after this to allow for analysis and further publication of findings, after which it will be destroyed.

Should you feel that taking part in this project has raised any issues you feel need further discussion, please contact the university counselling service via email on studentwellbeing@lincoln.ac.uk

Informed Consent

Please tick (✓) the statements below to indicate agreement:

I have read the information regarding the project and I understand that I will be participating in formal assessments and recorded interviews.

I understand that my participation is voluntary and I am clear about the procedures for withdrawing from the project.

I understand my data will be stored securely and that my anonymity will be preserved.

I consent for my data to be used as part of the project **“Cognitive immobilisation in dyslexic students in Higher Education: Exploring links with aspects of memory and fluctuating emotional status, informing effective coping strategies”**.

Student Signature _____

I am happy for the researcher to contact me about continuing to be part of the research project

You can contact me by email at _____

You can text me on _____

Appendix B: Survey Questionnaire

This questionnaire is addressed to all dyslexic students studying at this university who **hold a current diagnostic assessment report**, as part of my research project for my EdD course. I would be very grateful if you could spare a few moments to complete the attached questionnaire.

My research project will explore the way increased stress and anxiety can result in an HE student who is dyslexic entering a panic/stress loop that can leave him/her, literally, immobilized and temporarily unable to continue with their academic work.

The information you supply will be kept strictly confidential and will be anonymized on receipt. It will be securely stored by me electronically for 5 years after the end of this 1-year project, when it will be destroyed.

Your completion and submission of this questionnaire implies consent for the information to be used within the research project.

If you would prefer to complete a paper-based copy of the questionnaire, please text or email me and I will arrange it.

I also seek **volunteers** to take part in the rest of the project which will run until the end of this academic year. I will meet you regularly on a 1:1 basis in the main University library at mutually agreed times.

Participants who complete the research requirements will be entered into a draw for a **£150 Amazon gift voucher**.

To volunteer to continue participation, or for further details, please contact me on 078 999 666 80 or email annharrislock@aol.com.

Supervisor: : Dr Carol Callinan, School of Education, College of Social Sciences, University of Lincoln, Brayford Campus, ccallinan@lincoln.ac.uk, 01522 837315

**Cognitive immobilisation in dyslexic Higher Education students:
Exploring possible triggers, links with aspects of memory and fluctuating
emotional status, informing effective coping strategies**

(Please delete as appropriate)

1. Gender M / F
2. Age _____yrs
3. Age when diagnosed as Dyslexic? _____yrs
4. Where are you in your studies? 1st yr/ 2nd yr/ 3rd yr/postgrad
5. Are you studying Full-time? / Part-time?
6. Have you been offered 1:1 study skills support for
your dyslexia? Yes/No
7. Have you accepted the offer of 1:1 study skills support? Yes/No
8. If yes, how many hours per year were you awarded? _____ hrs
9. Are your fellow students on your course aware you
are dyslexic? Yes/ Only close friends/No/ Don't know
10. Do you prefer other students and lecturers **NOT** to
know that you are dyslexic? Yes/No/Hadn't thought about it
11. Do you think you suffer from anxiety/stress caused
by your academic workload, to a greater extent than
your non-dyslexic peers?

Much more / Slightly more / About the same/
Slightly less /Much less / Don't know
12. Have you ever experienced 'freezing up' in an academic
situation when you became so stressed and anxious
you were unable to carry on working?

(eg in an exam, a seminar, giving a presentation
or reaching a submission deadline)

Frequently / Several times / Once or twice / Never

13. Have you ever missed a submission deadline because of this? Yes/No
14. Have you ever had to take a study break because of this? Yes/No
15. If you have your diagnostic report available, what is the Standard Score for your Short term/Working memory? (Don't worry if you can't find it) _____
16. If you have a particular coping strategy you use to avoid experiencing 'freezing up' like this, please share it below
17. Any further relevant comments you would like to share

Thank you very much for taking the time to respond to this survey

To volunteer to continue with the project, please contact me at
annharrislock@aol.com or text 078 999 666 80

Appendix C: Interview guide for Specialist Dyslexia Support Tutors

Cognitive immobilisation in dyslexic Higher Education students: Exploring possible triggers, links with aspects of memory and fluctuating emotional status, informing effective coping strategies

My research project will explore the way increased stress and anxiety can result in a dyslexic HE student entering a panic/stress loop that can leave him/her, literally, immobilized and unable to continue with their academic work. The term cognitive immobilisation is used throughout this research project to describe this phenomenon of 'freezing up' experienced by individuals whose stress and anxiety have reached critical levels.

This is usually a temporary condition and although all students can experience the negative, blocking effects of cognitive overload on their achievements at some time, the nature of dyslexia is likely to intensify the likelihood of this happening.

I would be grateful if you could share your experience with me.
Do you mind if I record our discussion?

The information you give me will be anonymised and kept strictly confidential.
The transcript can be made available to you, when you may decide to withdraw any or all of it if you so wish.

Supervisor: : Dr Carol Callinan, School of Education, College of Social Sciences, University of Lincoln, Brayford Campus, ccallinan@lincoln.ac.uk,
01522 837315

**Please sign below to confirm you give your consent for information from
this interview to be used anonymously within this research project.**

I confirm that the information I give during this interview may be used within this research project.

Signed _____ **Date** _____

Name (please print) _____

Semi-structured interview questions

- 1. How long have you been supporting dyslexic HE students?**
- 2. How many students do you usually see during an academic year?**
- 3. Can you recall any incidences when students you have been supporting have experienced cognitive immobilisation?**
- 4. Did this student/these students leave their course or take a study break as a result of this?**
- 5. Do you recommend any coping strategies to your students to help them reduce their stress/anxiety to avoid escalation into cognitive immobilisation?**
- 6. Can you comment on the effectiveness of the coping strategies that you recommend?**

Thank you very much for taking the time to help with this research.

APPENDIX D: Form for self-reporting the Self-Image Profile

The Self Image Profile For Adults (SIP-AD)

Richard J Butler & Sarah L Gasson


Name:

Age:

Sex: Male / Female

Date:

Please read the instructions carefully.

1. Please shade the box  according to *how you think you are* using the 0 - 6 scale, where 0 means 'not at all' like the description and 6 means 'very much' like the description.

2. Put a star in the box  according to *how you would like to be*.

Example

	Not At All				Very Much		
	0	1	2	3	4	5	6
positive						*	

A shading of 3 means the person thinks of themselves as midway along the scale and with the star at 5, would wish to be more positive.

There are no right or wrong answers. Use any number along the scale to show how you think of yourself.

APPENDIX D (p 2) Form for self-reporting the Self-Image Profile

		Not At All				Very Much				
		0	1	2	3	4	5	6	Discrepancy	
1	Enthusiastic									
2	Happy [O]									
3	Optimistic [O]									
4	Easy Going [O]									
5	Patient [O/Con]									
6	Caring [Con]									
7	Good Listener [Con]									
8	Thoughtful [Con]									
9	Helpful [Con]									
10	Generous [Con]									
11	Sensitive [Con]									
12	Kind [Con]									
13	Friendly [Con/S]									
14	Sociable [S]									
15	Fun [S]									
16	Outgoing [S]									
17	Sense of Humour [S]									
18	Fit [P]									
19	Active [P]									
20	Thin / Slim [P]									
21	Creative [Com]									
22	Organised [Com]									
23	Determined [Com]									
24	Intelligent [Com]									
25	Confident [Com]									
26	Hard Working [M]									
27	Loyal [M]									
28	Trustworthy [M]									
29	Reliable [M]									
30	Honest [M]									
Column totals										

Please remember to put a **star** in the box ☐ according to *how you would like to be*, again using the 0 - 6 rating scale.

PLEASE DO NOT WRITE BELOW THIS LINE

APPENDIX E: Modified BAI form for self-reporting anxiety symptoms

Personal code Number _____ Date _____

Below is a list of common symptoms of anxiety.

Please carefully read each item in the list and indicate how much you have been bothered by each symptom during the PAST WEEK, INCLUDING TODAY, by placing an X in the corresponding space in the column next to each symptom.

(Ref: The Beck Anxiety Inventory (BAI) (Beck and Steer, 1993)

	NOT AT ALL	MILDLY It did not bother me much	MODERATELY It was very unpleasant but I could stand it	SEVERELY I could barely stand it
1 Numbness or tingling				
2 Feeling hot				
3 Wobbliness in legs				
4 Unable to relax				
5 Fear of the worst happening				
6 Dizzy or lightheaded				
7 Heart pounding or racing				
8 Unsteady				
9 Terrified				
10 Nervous				
11 Feelings of choking				
12 Hands trembling				
13 Shaky				
14 Fear of losing control				
15 Difficulty breathing				
16 Fear of dying				
17 Scared				
18 Indigestion or discomfort in abdomen				
19 Faint				
20 Face flushed				
21 Sweating (not due to heat)				

Appendix F: BHS form for self-reporting hopelessness



Date: _____

Name: _____ Marital Status: _____ Age: _____ Sex: _____

Occupation: _____ Education: _____

This questionnaire consists of 20 statements. Please read the statements carefully one by one. If the statement describes your attitude for the **past week, including today**, darken the circle with a 'T' indicating TRUE in the column next to the statement. If the statement does not describe your attitude, darken the circle with an 'F' indicating FALSE in the column next to this statement. **Please be sure to read each statement carefully.**

- | | |
|--|---|
| 1. I look forward to the future with hope and enthusiasm. | <input type="radio"/> T <input type="radio"/> F |
| 2. I might as well give up because there is nothing I can do about making things better for myself. | <input type="radio"/> T <input type="radio"/> F |
| 3. When things are going badly, I am helped by knowing that they cannot stay that way forever. | <input type="radio"/> T <input type="radio"/> F |
| 4. I can't imagine what my life would be like in ten years. | <input type="radio"/> T <input type="radio"/> F |
| 5. I have enough time to accomplish the things I want to do. | <input type="radio"/> T <input type="radio"/> F |
| 6. In the future, I expect to succeed in what concerns me most. | <input type="radio"/> T <input type="radio"/> F |
| 7. My future seems dark to me. | <input type="radio"/> T <input type="radio"/> F |
| 8. I happen to be particularly lucky, and I expect to get more of the good things in life than the average person. | <input type="radio"/> T <input type="radio"/> F |
| 9. I just can't get the breaks, and there's no reason I will in the future. | <input type="radio"/> T <input type="radio"/> F |
| 10. My past experiences have prepared me well for the future. | <input type="radio"/> T <input type="radio"/> F |
| 11. All I can see ahead of me is unpleasantness rather than pleasantness. | <input type="radio"/> T <input type="radio"/> F |
| 12. I don't expect to get what I really want. | <input type="radio"/> T <input type="radio"/> F |
| 13. When I look ahead to the future, I expect that I will be happier than I am now. | <input type="radio"/> T <input type="radio"/> F |
| 14. Things just won't work out the way I want them to. | <input type="radio"/> T <input type="radio"/> F |
| 15. I have great faith in the future. | <input type="radio"/> T <input type="radio"/> F |
| 16. I never get what I want, so it's foolish to want anything. | <input type="radio"/> T <input type="radio"/> F |
| 17. It's very unlikely that I will get any real satisfaction in the future. | <input type="radio"/> T <input type="radio"/> F |
| 18. The future seems vague and uncertain to me. | <input type="radio"/> T <input type="radio"/> F |
| 19. I can look forward to more good times than bad times. | <input type="radio"/> T <input type="radio"/> F |
| 20. There's no use in really trying to get anything I want because I probably won't get it. | <input type="radio"/> T <input type="radio"/> F |

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Product Number 0154133620

This questionnaire consists of 20 statements. Please read the statements carefully one by one. If the statement describes your attitude for the **past week, including today**, darken the circle with a 'T' indicating TRUE in the column next to the statement. If the statement does not describe your attitude, darken the circle with an 'F' indicating FALSE in the column next to this statement. **Please be sure to read each statement carefully.**

- | | |
|--|---|
| 1. I look forward to the future with hope and enthusiasm. | <input type="radio"/> T <input type="radio"/> F |
| 2. I might as well give up because there is nothing I can do about making things better for myself. | <input type="radio"/> T <input type="radio"/> F |
| 3. When things are going badly, I am helped by knowing that they cannot stay that way forever. | <input type="radio"/> T <input type="radio"/> F |
| 4. I can't imagine what my life would be like in ten years. | <input type="radio"/> T <input type="radio"/> F |
| 5. I have enough time to accomplish the things I want to do. | <input type="radio"/> T <input type="radio"/> F |
| 6. In the future, I expect to succeed in what concerns me most. | <input type="radio"/> T <input type="radio"/> F |
| 7. My future seems dark to me. | <input type="radio"/> T <input type="radio"/> F |
| 8. I happen to be particularly lucky, and I expect to get more of the good things in life than the average person. | <input type="radio"/> T <input type="radio"/> F |
| 9. I just can't get the breaks, and there's no reason I will in the future. | <input type="radio"/> T <input type="radio"/> F |
| 10. My past experiences have prepared me well for the future. | <input type="radio"/> T <input type="radio"/> F |
| 11. All I can see ahead of me is unpleasantness rather than pleasantness. | <input type="radio"/> T <input type="radio"/> F |
| 12. I don't expect to get what I really want. | <input type="radio"/> T <input type="radio"/> F |
| 13. When I look ahead to the future, I expect that I will be happier than I am now. | <input type="radio"/> T <input type="radio"/> F |
| 14. Things just won't work out the way I want them to. | <input type="radio"/> T <input type="radio"/> F |
| 15. I have great faith in the future. | <input type="radio"/> T <input type="radio"/> F |
| 16. I never get what I want, so it's foolish to want anything. | <input type="radio"/> T <input type="radio"/> F |
| 17. It's very unlikely that I will get any real satisfaction in the future. | <input type="radio"/> T <input type="radio"/> F |
| 18. The future seems vague and uncertain to me. | <input type="radio"/> T <input type="radio"/> F |
| 19. I can look forward to more good times than bad times. | <input type="radio"/> T <input type="radio"/> F |
| 20. There's no use in really trying to get anything I want because I probably won't get it. | <input type="radio"/> T <input type="radio"/> F |

Appendix G Comments on coping strategies from survey (33 out of 40 respondents – Q16)		
Coping Strategy	No of Respondents	Quotations (spelling as presented)
Deep breathing exercise	3	“When struggling with reading and writing under exam conditions I have a 2 min deep breathing exercise ... to regain and calm down. Which helps to refocus.”
Mindfulness	2	<p>“I also use mindfulness to deal with the anxiety”</p> <p>“Accept that it is going to happen and make a mental note when you realise that it is starting allows me to understand that it is okay. I then take a deep breath and focus on something in the room I'm in, which is not what I'm supposed to be doing- e.g. the colour of the wall paper, the pattern of the carpet. I then take another deep breath and return to the work.”</p>
Positive Self-talk	4	<p>“The phrase 'what is the worst that can happen' is generally the most important.”</p> <p>“...reflecting on what I "can" do rather than what I "can't" do really helps me organise my mind into thinking that it does know things.”</p> <p>“a great sense of irony, and I am not going to let this bugger beat me.”</p>
Note taking/ Recording lectures	3	“Rainbow note taking - right each line in colour orders helps relax me and helps my memory.”

		<p>"I bring a recorder to record the lecture in case I stop concentrating."</p>
Take time out	12	<p>"I don't work past a certain time and use that time for things I enjoy and don't have to think about anything."</p> <p>"I tend to take a few days away from the work that is causing me problems."</p> <p>"If I start feeling bad, I'll take a break."</p> <p>"My method is taking a small break when I experience 'freezing up' and trying again in a short while. It does not always work."</p>
Allow more time/apply for extension	8	<p>"I always have to apply for extensions."</p> <p>"To cope with this I make sure that I start coursework or essays around 6 weeks in advance so that if I do 'freeze up' I still have plenty of time to get my work done."</p>
Organisation/planning	6	<p>"To avoid 'freezing up' I try to...have everything I need close by."</p> <p>"I tend to write a lot of lists or write down dates and make timetables."</p>
Listening to music	3	<p>"Listening to music helps me focus for longer, especially if it has no lyrics."</p> <p>"Close my eyes and hum in my head too slow donw my panicing."</p>

Support	7	<p>"I was referred to talk therapy by my doctor due to the high level of stress I was experiencing."</p> <p>"Talking course work and deadlines through with family and academic support."</p> <p>"Using software given to me to help"</p> <p>"Asking for my work to be assessed as I go."</p>
Regular practice	2	<p>"The only thing that helps is regular practice of doing a task repeatedly so I am able to recover."</p> <p>"...basically <u>practice, practice, practice.</u>"</p>
None	2	<p>"No there is no amount of planning when it happens, the mind just goes blank and there is no recovering from it."</p> <p>"Not really, I just have the panic attacks then somehow carry on."</p>

Appendix H: Coded Participants' Triggers for Cognitive Immobilisation

Trigger	Description	How many reported
Academic issues		
Pressure of academic work	Several pieces of work for different lecturers to be submitted at the same time	10
Misunderstanding of academic work	Not understanding what is being asked for in terms of assignments	6
How course is run	Participants find administration of course stressful	5
Asked for help	Participants unsuccessfully requested specific support/advice from course tutors	5
Feedback from academic tutors	Lack of/not helpful	5
Marking	Contrary to University policy for dyslexic students, sometimes their work was not marked for content – and spelling errors attracted penalties	3
Procrastination	Putting off starting a piece of work until the last possible moment	5
Refused 1:1 support	Support was offered too late in the academic year / Participant considered it inappropriate	6
Failures/ deferments	Participants having to re-sit exams before the end of the academic year, or have deferred work until next academic year	2

IT issues	Broken laptops, library internet service, Microsoft updates making specialist software incompatible, therefore unusable	5
Linked to the dyslexia 'label'		
Bullying	Participants' perception that they are being bullied by tutors/other students	2
Label (linked with bullying?)	Negative implications of having the 'label' of dyslexia	9
Told won't do well in work	Poor spelling etc, (linked to 'employment' & 'bullying' & 'label'?)	2
Treated differently from non-dyslexic students	Eg tutor's presentation on coloured slides which Participant could not read – attention drawn to the fact that 'dyslexics are different'	6
History of need for, and provision of, support for dyslexia	Participants' issues linked with 'needing extra help'	10
Personal/Family issues		
Participants' illness	Various ongoing health issues and cases of colds/flu	9
Personal issues (sometimes linked with illness?)	Participants affected by adverse personal circumstances	6
Tutors	Personal conflicts/dislike of tutors	5
Life balance	Participants unsuccessfully attempt to separate stress in their social lives from academic life stress	3
Anger (linked to some or all of the above?)	Participants' anger escalated to trigger CI	5

Appendix J: Coping strategies already used by participants and their effectiveness

Coping Strategy	Description	How many used it successfully	How many used it unsuccessfully
Visit Wellbeing Centre	University Wellbeing Centre administers support for students with disabilities, including dyslexia	1	3
Recognising “good days/bad days”	Recognising when they are experiencing a “bad day” and planning their work accordingly	3	0
Specialist software	Use of software such as Dragon Naturally Speaking, TextHelp Read and Write, Inspiration	2	0
Sings as goes upstairs	Eg Repeats “I’m going up the stairs to get my hairbrush” as memory aid for why she is going upstairs	1	0
Writes poetry	Composes poetry to describe how she feels to reduce levels of stress/anxiety	1	0
Listen to music	Use of personal stereos to listen to music to reduce levels of stress/anxiety	7	0
Gym/exercise	Participants use general exercise or visits to the gym regularly to reduce levels of stress/anxiety	3 (all male)	0

Walk away	Participants take time out from a stressful situation and walk away from it temporarily	11	0
Characters in Head	Participant describes interacting with different imaginary characters, eg he “speaks to a manager” when he needs advice on managing his academic workload	1	0
Games	Participants play board games and/or computer games	2	1
Noticeboard	Participant organises his academic workload using stickers on a noticeboard	1	0
Reading	Reading for pleasure (not academic material)	2	0
Tinted lenses/coloured paper	Participants wear glasses with tinted lenses or use coloured paper/ overlays to overcome visual stress	8	0
Counselling	Attendance at university counselling service through the Wellbeing Centre	1	1
Stress Ball	Participants “twiddle” with jewellery to alleviate their need to fidget	4	0
Aromatherapy candle	Fragrant candle burned to aid relaxation	1	0

Kitchen timer	When Participant is procrastinating due to stress, he sets his timer for 25 minutes and tries to work at least until the time is up. He often continues to work once he has started	1	0
1:1 specialist support	Participants' evaluation of the Specialist 1:1 Study Skills support offered to them	7	6

Appendix K: Coping strategies introduced during the project and their effectiveness

Coping Strategy	Description	How many used it successfully	How many used it unsuccessfully
Humming/song lyrics	Humming or singing during an activity to reduce anxiety	1	0
Affirmation band	Stretch and let go of an elasticated bracelet to aid control of thought patterns	3	1
Meditation/ Mindfulness	Becoming more aware of the present moment, calming down thoughts and using a choice of meditation techniques	6	1
Visualisation	Creating visual mental imagery of possible situations to alter linked emotions or feelings, with the aim to reduce such as anxiety or low self-esteem	5	0
Controlled Breathing	Breathing Square: breathe in for a count of 6; hold breath for a count of 6; breathe out for a count of 6; hold breath for a count of 6, repeated as necessary	6	1
Revision/crib cards	Recording reduced notes on index cards for revision or to consult during delivery of presentations	3	0
Hand/Broken Record	When someone is questioning the Participant and she cannot answer as quickly as she feels she needs to, she freezes up. She puts her hand up, palm towards the questioner and asks them to stop for a moment to allow her to formulate her answer. She then continues, repeating her request like a 'broken record'.	1	0

Stock Phrases	Practice a few selected phrases for use in situations where you have previously frozen up, so you will be familiar with an appropriate phrase to use.	3	0
Roman Room	This memory aid is based on the assumption that you can best remember places that you are familiar with, so if you can link something you need to remember with a place that you know very well, the location will serve as a clue that will help you to remember information	2	0
Handwriting pen/pencil grip	Use of Stabilo ergonomically designed pen and grips to fit onto pencils to alleviate pain in hand/wrist when writing due to Participant's lack of firm tripod grip when writing by hand (notetaking)	1	0
Counselling	Referred to University Counselling Services through the Wellbeing Centre	1	1
Stress Ball	Participants use 2 orange glass nuggets used during the TOMAL-2 assessments as stress balls to alleviate their need to fidget due to stress when trying to concentrate, eg during lectures	2	0
Aromatherapy	Essential oils are used eg Lavender to aid sleep, Rosemary to enhance memory when revising	4	0
4-minute Rule	Participants who are procrastinating determine to complete some academic work for only 4 minutes. If they are unable to continue they stop	3	0

	trying, but usually find they can carry on with the task.		
Turn off the spellchecker while word processing	Participant disables the spellchecking facility on their PC while they are working, so they are not constantly distracted by spelling and grammar errors while composing their work	1	0
Opportunity to meet and talk regularly	Participants find regular meetings with Researcher a therapeutic way of “getting things off their chest”	10	0
Using weekly GANTT chart	Weekly timetable with other activities factored in eg shopping, gym, leisure time	3	0
Planning work	Planning before beginning to write first draft	5	0
Dictaphone	Recording lectures so Participants can relax and take in lecture content without having to worry about missing anything while they are taking notes	5	0
Exam Techniques	Exam and revision techniques to encourage Participants to achieve automaticity in accurate recall from long term memory, so avoiding ‘paralysis-by-analysis’ when engaging the working memory	8	0

Appendix L: Brief Profiles of 13 Participants

1. Angela

Angela was a 33-year-old female, full-time, 1st year, undergraduate student who was identified as being dyslexic at 16 years, consequently having some support at college. She was currently pleased with her one-to-one support with a Specialist Dyslexia Support Tutor. Her tutors and friends on her course were aware she is dyslexic and she was happy with this.

Triggers for CI identified by Angela

Illness –

“I suffer a lot with depression and personal issues linked to this illness.”

Paid employment -stress at work due to her dyslexia

“I have a history of need and provision, relating to my dyslexia and I find having this label very stressful.”

“My memory is not good.”

“I am a bit of a perfectionist ...that puts me under pressure.”

Strategies Angela uses to avoid CI

She attends 1:1 support regularly and counselling sessions through the University Counselling Service. She plays various sports and listens to music. She also meditates.

“If I freeze up I will walk away.”

She uses coloured paper and wears tinted lenses for visual stress

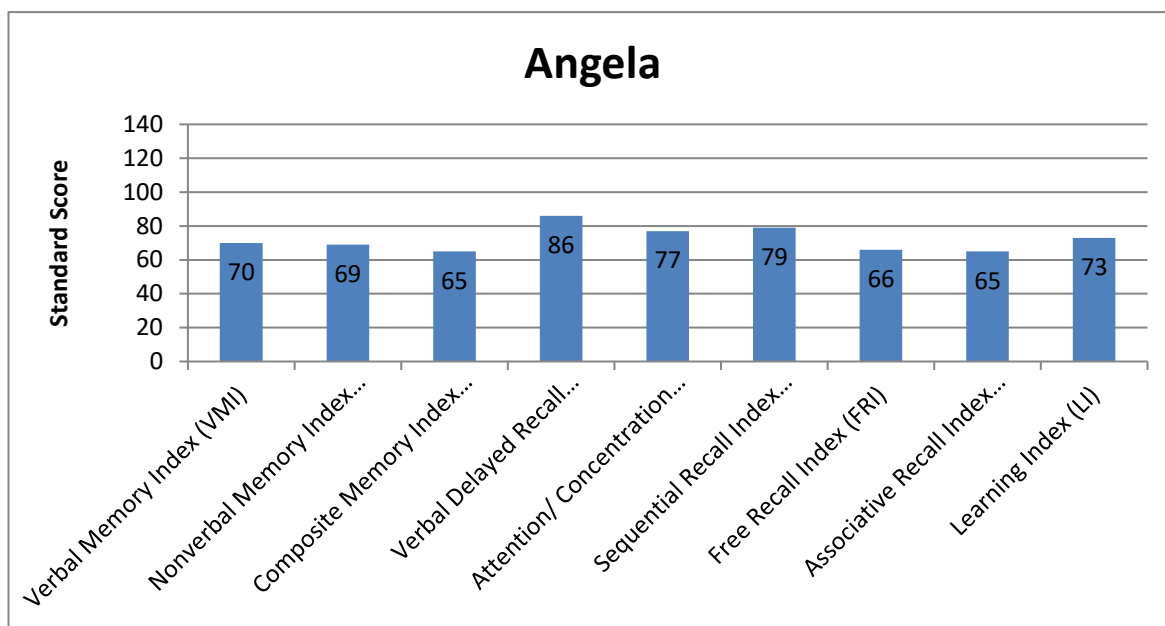
Strategies Angela has successfully used from this project

Revision/exam techniques (but does have 1:1 support)

Opportunity to meet and talk regularly *“It’s been good for monitoring myself and how I have been each week”*

Angela now links Mindfulness with her meditation.

TOMAL-2 Profile



Standard Scores

Low Average VDRI

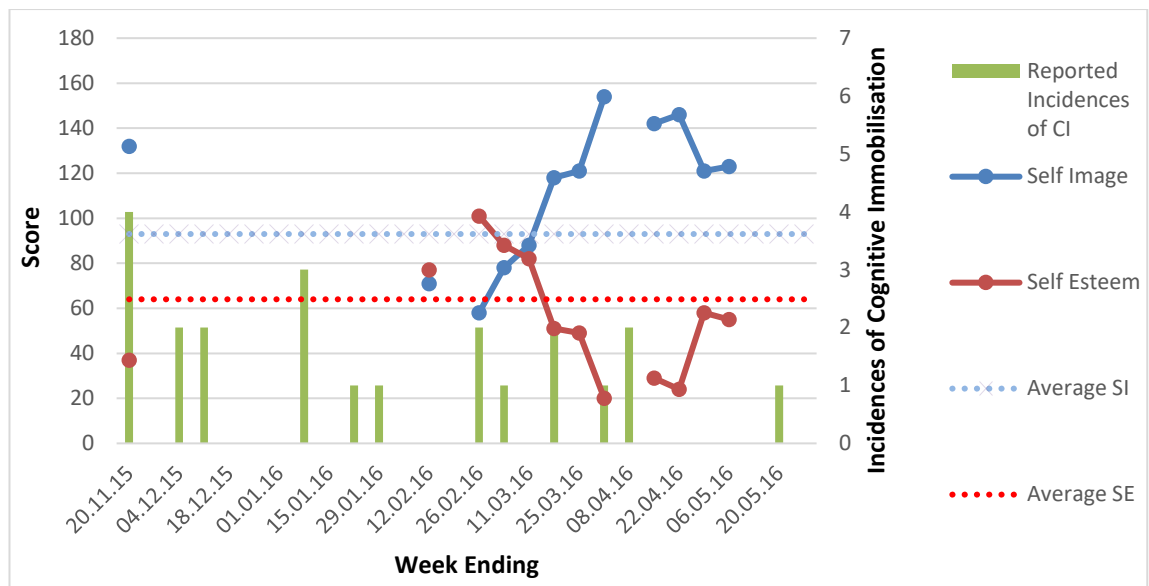
Below Average VMI, ACI, SRI, LI

Well Below Average NMI, CMI, FRI, ARI

Fluctuating Emotional Status (Incomplete Data Submitted)

Angela reported 22 incidences during 19 weeks reported
(Frequency of CI = 1.16).

The Self Image Profile for Adults (SIP-AD) and Frequency of Incidence of Cognitive Immobilisation

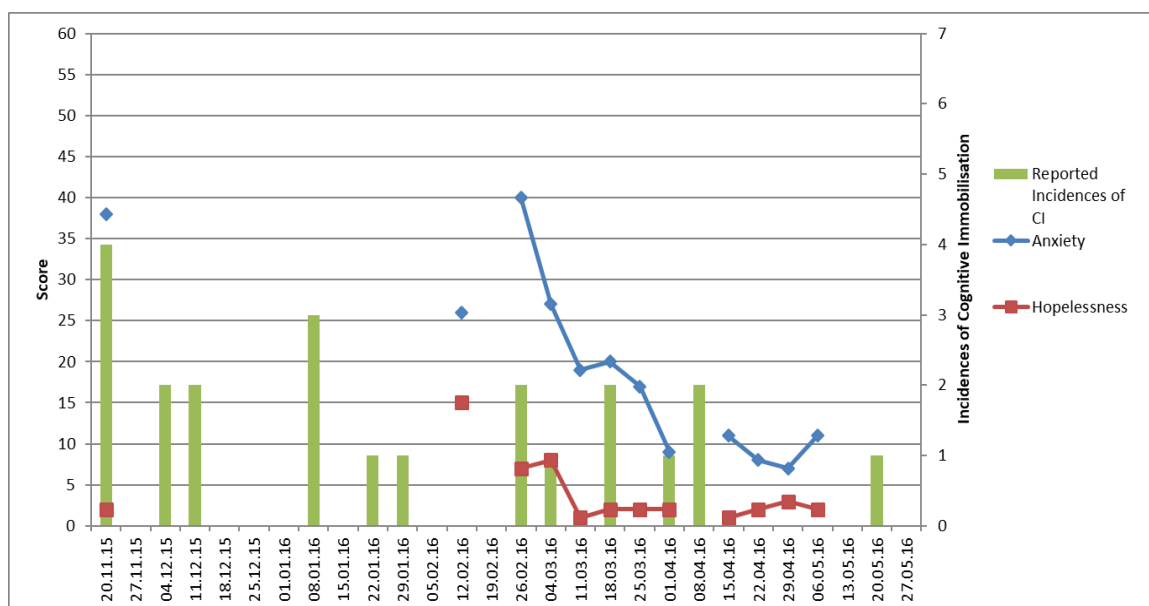


Average Self Image = 93 Average Self Esteem = 64

[NB Higher score for Self Esteem = lower level of Self-Esteem since it is a measure of the discrepancy between the scores of “where I think I am now” and “where I would like to be”, on the same scale.

A lower score for this discrepancy (=score for Self-Esteem) represents the individual feeling nearer to “where I would like to be”, suggesting a higher level of Self-Esteem. Therefore a score of 0 for self-esteem would suggest the highest level of self-esteem as the individual feels ‘they are where they would like to be at the present time’.]

Beck Anxiety Inventory, Beck Hopelessness Scale and Frequency of Incidence of Cognitive Immobilisation



Key	
Beck Anxiety Inventory	
Score	Descriptor
0 - 7	Minimal anxiety
8 - 15	Mild anxiety
16 - 23	Moderate anxiety
26 - 63	Severe anxiety
Beck Hopelessness Scale	
Score	Descriptor
0 - 3	Minimal
4 - 8	mild
9 - 14	Moderate
>14	Severe

Incidences of CI occur even when SI/SE high and whether Anxiety levels severe or mild. No CI over Xmas break but high incidence when she returned to Uni. CI at Easter but at home, ill.

BAI severe (then started to see University Counsellor) until 29/02, then moderate to 28/03, then mild to 16/05.

BHI always reported within the Minimal/Mild range, possibly suggesting Internal Locus of Control.

After Easter, from 18/03 SI above average and SE average and above; BAI decreased to within the mild range and BHS minimal 11/03 to 06/05 apart from one incidence of CI in week ending 20/05 when Angela had an exam and had to move house.

2. Alan

Alan was a 20-year-old male, full-time, 2nd year, undergraduate student who was identified as being dyslexic at 19 years in his 1st year at the university. He was currently pleased with his one-to-one support with a Specialist Dyslexia Support Tutor. His tutors and fellow students on his course knew he was dyslexic. He had not thought about whether anyone knew he was dyslexic. He considered he suffered from stress slightly more than his non-dyslexic peers and reported previously experiencing CI several times.

Triggers for CI identified by Alan

Pressure of academic work and stress relating to how his course is run

Paid employment – stress at work due to my dyslexia

IT issues – *“I rely on my specialist software and it often does not work properly.”*

Strategies Alan uses to avoid CI:

He acknowledged he has ‘good days and bad days’

He relied on assistive software: Dragon, TextHelp Read & Write, Inspiration and Global Spellchecker.

Alan already regularly used meditation, listened to music (no lyrics) and went to the gym. He also used time management/organisation strategies and sometimes used ‘positive self-talk’ in the form of *“...conversations with characters in my head, eg a manager”*

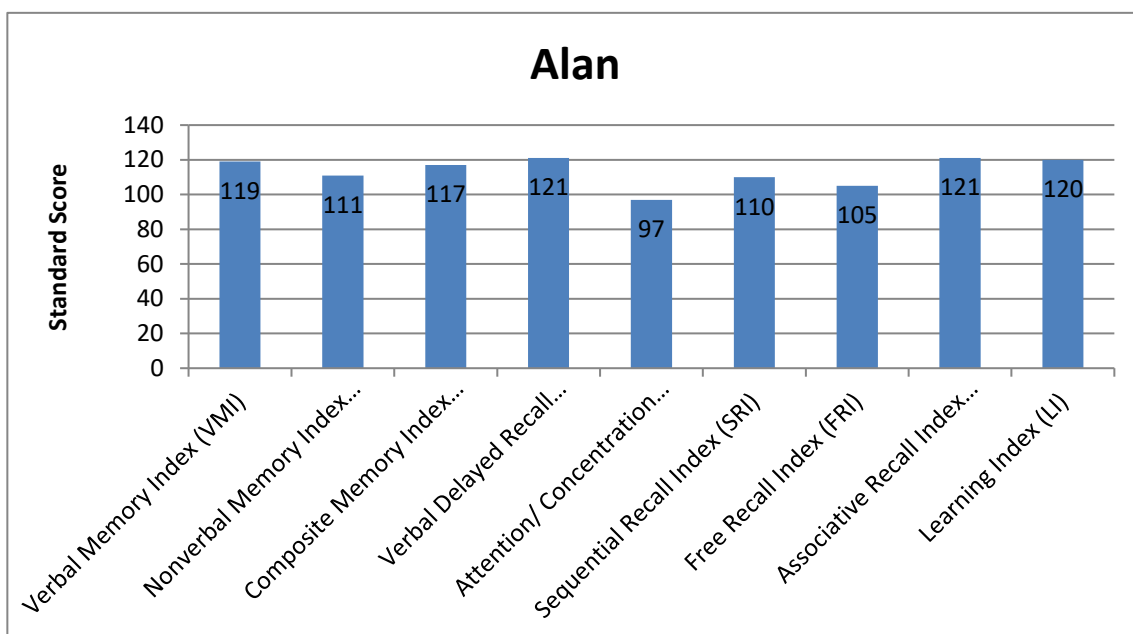
Strategies Alan has successfully used from this project:

Alan now uses Mindfulness exercises to complement his usual meditation which he felt helps him monitor his emotional status.

He now uses an affirmation band which he snaps on his wrist while saying *“I am in control”*, in order to control his thoughts and reduce his anxiety.

Alan now uses revision/crib cards when he delivers a PowerPoint presentation (but does have 1:1 support).

TOMAL-2 Profile



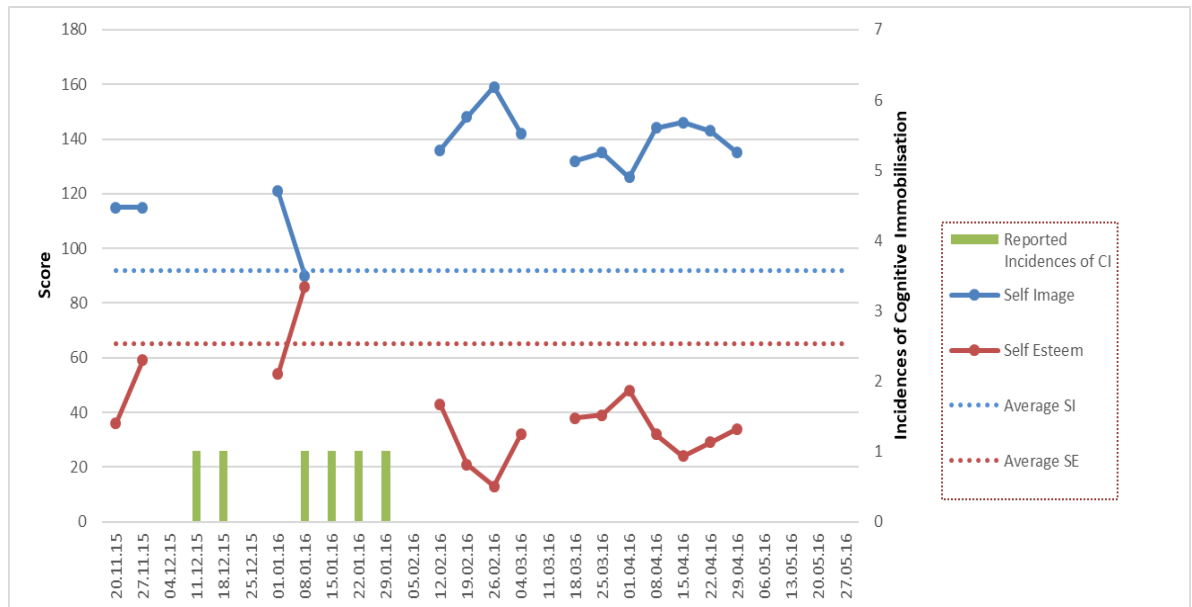
Standard Scores

Above Average	VMI, CMI, VDRI, ARI, LI
High Average	NMI,
Average	ACI, FRI, SRI,

Fluctuating Emotional Status (Incomplete Data Submitted)

Alan reported 6 incidences during 20 weeks reported
(Frequency of CI = 0.30).

The Self Image Profile for Adults (SIP-AD) and Frequency of Incidence of Cognitive Immobilisation

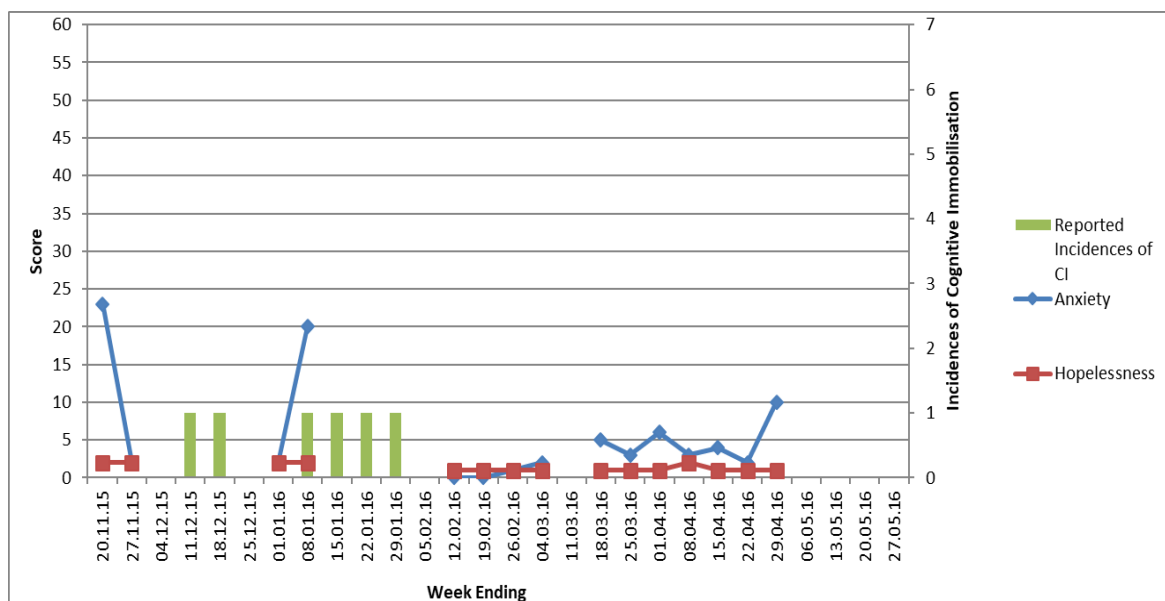


Average Self Image = 92 Average Self Esteem = 65

[NB Higher score for Self Esteem = lower level of Self-Esteem since it is a measure of the discrepancy between the scores of “where I think I am now” and “where I would like to be”, on the same scale.

A lower score for this discrepancy (=score for Self-Esteem) represents the individual feeling nearer to “where I would like to be”, suggesting a higher level of Self-Esteem. Therefore a score of 0 for self-esteem would suggest the highest level of self-esteem as the individual feels ‘they are where they would like to be at the present time’.]

Beck Anxiety Inventory, Beck Hopelessness Scale and Frequency of Incidence of Cognitive Immobilisation



Key	
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Score	Descriptor
0 - 7	Minimal anxiety
8 - 15	Mild anxiety
16 - 23	Moderate anxiety
26 - 63	Severe anxiety
Beck Hopelessness Scale	
Score	Descriptor
0 - 3	Minimal
4 - 8	mild
9 - 14	Moderate
>14	Severe

Alan experienced no incidences of CI over the 2-week Xmas break and none at all after 29/01.

After 29/01, SI and SE consistently above average.

BAI fluctuated between moderate and minimal between 20/11 and 08/01; from 12/02 to 22/04 it was minimal, except for an increase during Alan's last project when it reached the mild level.

BHS level was consistently within the minimal range, suggesting an internal locus of control.

"The BHS forms are all filled in the same because I have the same long-term view...all the questions are long term and my opinions on these

things aren't going to change week by week; maybe over the course of a year or two I might differ these opinions, but generally they are the summation of my previous experiences."

3. Carolyn

Carolyn was a 24-year-old female, part-time, postgraduate student who was identified as being dyslexic at 16 years. She was offered one-to-one support with a Specialist Support Tutor at the University. However, since she had some support at college before coming to university and did not find it useful, she has not accepted the 1:1 support offered here.

She told all her tutors and fellow students on her course that she is dyslexic. *"I would rather they knew - but I don't think they take any account of it."*

"I hate being told that I have done better and that I'll get better with time, especially when there were people there who hadn't written essays in years and they were scoring really high marks and I know I shouldn't correspond myself to other people because it's not the same, but you can't help it and I can't help it and I was really frustrated"

"I can't deal with 24-hour clock times. I'm bad at time management I'm always early for everything and stress until I get there."

"I think I suffer much more anxiety and stress than the others on my course and I frequently 'freeze up' and can't work. In my 3rd year I had 3 months' study break because I was ill."

"I froze up and it was like my mind was on pause but my mouth was on fast forward. I didn't know what to think but what I was saying wasn't making any sense, so I was trying to explain something but my brain was going 'I don't know what to say, I don't know what to say...'"

Triggers identified by Carolyn

IT issues (*"Dragon speaker working/then not working – very frustrating"*)

"I am 'labelled' as dyslexic and treated differently from the other students on my course. I have asked for more help from tutors but they are just going to send me a load of worksheets and stuff [more work?] to help me structure everything. I feel bullied."

"I have 'bad days' and then I get angry" – many family issues causing her stress

"In my paid employment, I have been asked not to wear my glasses with coloured lenses as customers are staring at me."

Anger relating to all the above,

"Situations and people make me angry and I lose control."

"I am alright on the day I am handing the essay in. I feel quite good but on the day the essay is back and everyone is talking about it, I start to get really worried so I start to feel sick..."

Strategies Carolyn uses to avoid CI:

Carolyn recognised 'good days/bad days', sings going up stairs (as a memory aid for what she is going upstairs to find), writes poetry, listens to music (very loud for about 30 minutes), walks away from stressful situations, wears tinted lenses for visual stress.

"I... like... sit in the cemetery up the road and sit listening to heavy metal and sobbing. No one takes any notice because they think I am crying for someone who's died."

She has tried playing games to reduce stress but finds this does not help as she is accused of being antisocial while playing with others.

Strategies Carolyn has successfully used from this project:

Carolyn says she

"...valued the opportunity to talk regularly ... talking to get it off my chest - Sorry about that...I feel much better now. Sorry I am releasing all this... everyone offloads on me and I don't usually have the opportunity to do it."

She finds the controlled breathing exercises very effective in stopping her panic attacks and she also regularly uses an affirmation band –

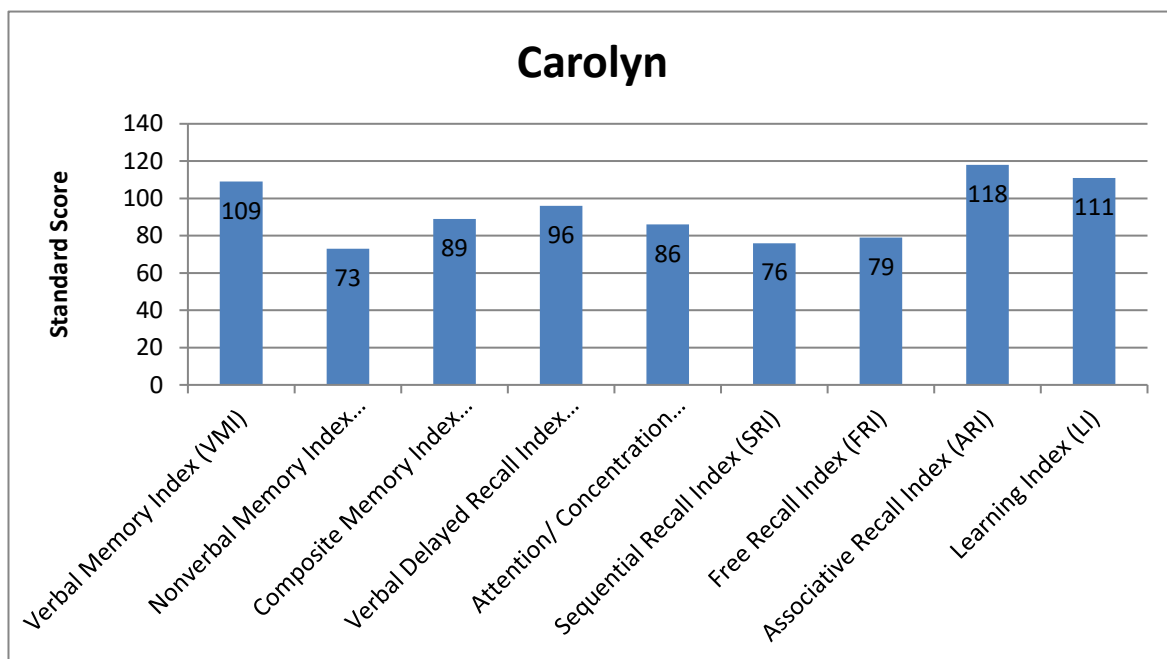
"I try not to get angry. I use it as soon as I start to get on edge - I whack it... it works!"

Carolyn now finds aromatherapy helps to reduce her anxiety levels: she uses Lavender (on a tissue) when relaxing and Rosemary when rehearsing a presentation she has to deliver. She also uses revision/crib cards to record basic ideas for presentations.

Carolyn now prefers to plan her work before starting first draft and finds word processing much less stressful if she turns off the spellchecker while working. She is able to enjoy and understand material delivered in her lectures and seminars now she uses a Dictaphone to tape them instead of struggling to make notes and listen at the same time.

Carolyn was encouraged to consult her GP about her frequent migraines but she declined. She also declined to apply for counselling commenting that she considered it *"...more trouble than it's worth"*.

TOMAL-2 Profile



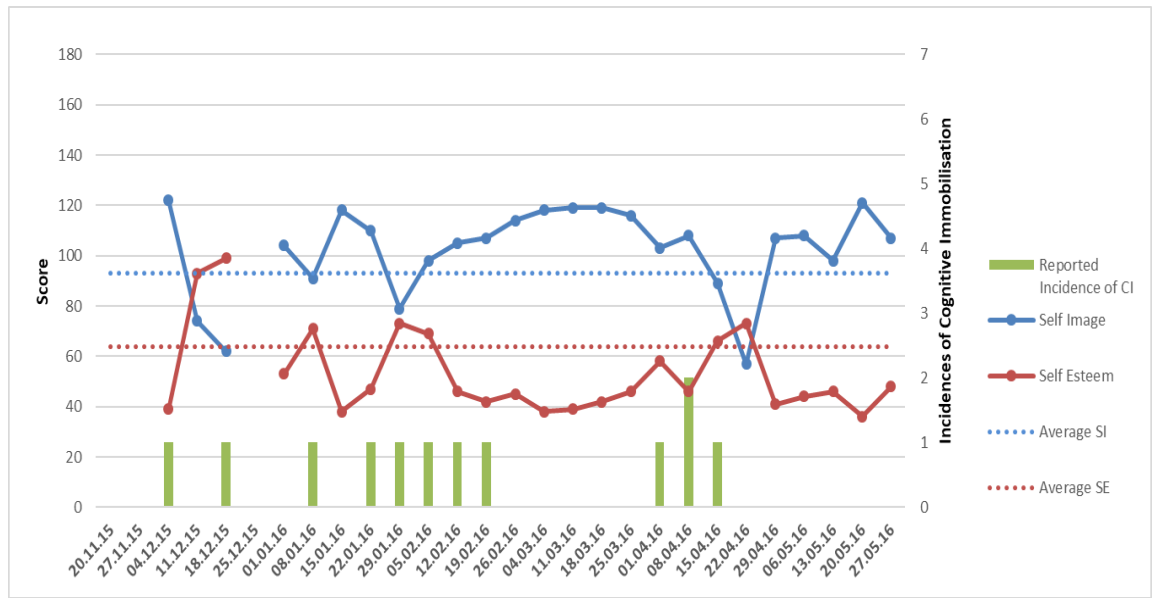
Standard Scores

Above Average	ARI
High Average	LI
Average	VMI, VDRI
Low Average	CMI, ACI
Below Average	NMI, FRI, SRI

Fluctuating Emotional Status (Incomplete Data Submitted)

Carolyn reported 12 incidences during 25 weeks reported
(Frequency of CI = 0.48).

The Self Image Profile for Adults (SIP-AD) and Frequency of Incidence of Cognitive Immobilisation

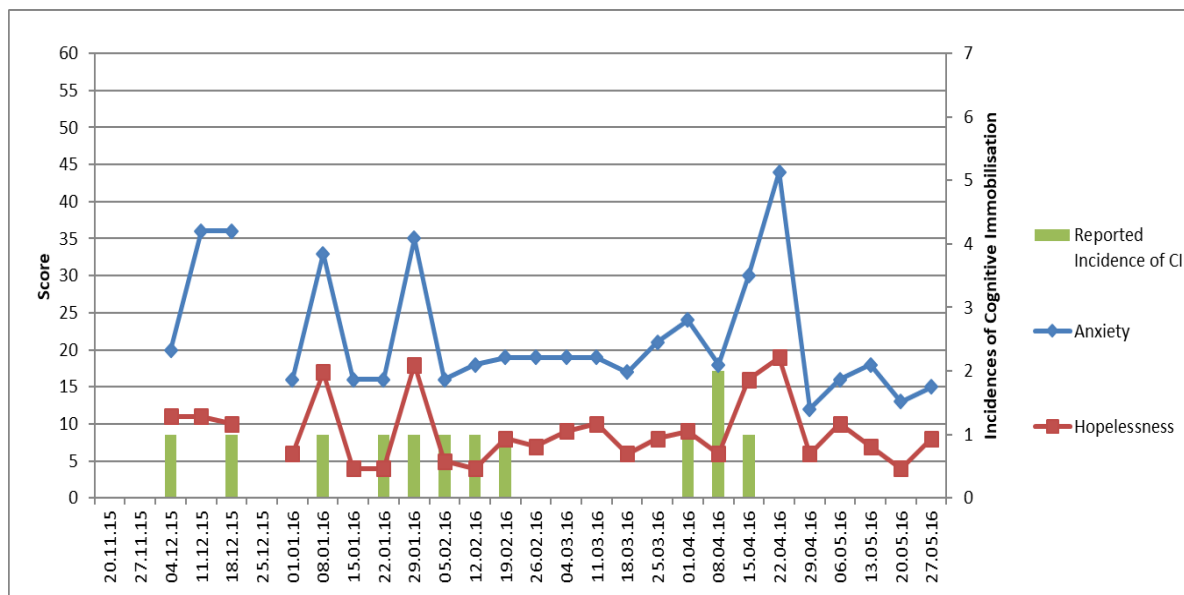


Average Self Image = 93 Average Self Esteem = 64

[NB Higher score for Self Esteem = lower level of Self-Esteem since it is a measure of the discrepancy between the scores of “where I think I am now” and “where I would like to be”, on the same scale.

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Beck Anxiety Inventory, Beck Hopelessness Scale and Frequency of Incidence of Cognitive Immobilisation



Key	
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0 - 7	Minimal anxiety
8 - 15	Mild anxiety
16 - 23	Moderate anxiety
26 - 63	Severe anxiety
Beck Hopelessness Scale	
Score	Descriptor
0 - 3	Minimal
4 - 8	mild
9 - 14	Moderate
>14	Severe

Carolyn experienced no incidences of CI during the Xmas and Easter breaks. From 2602, there were only 3 weeks (01/04, 08/04 and 15/04) when she froze up because she had academic work to submit.

SI dipped below average before Xmas and was then mostly above average, except just after the Xmas and Easter breaks when Carolyn had written work due for submission.

SE closely mirrored SI, with dips in the same places but otherwise remained above average.

BAI was moderate/severe at the start of the project and again after the Xmas break, tending to follow times of low SI/SE with peaks in the severe anxiety range during, or just after, and incidence of CI. Anxiety levels decreased from

moderate to mild towards the end of the project, apart from the peak during week ending 15/04.

BHI was moderate at the start of the project, then mild apart from 3 distinct peaks reaching the severe level, mirroring the peaks in anxiety levels after the Xmas and Easter breaks.

External locus of control suggested.

4. Diane

Diane was a 20-year-old female, full-time, 2nd year, undergraduate student who was identified as being dyslexic in primary school. She was not having one-to-one support with a Specialist Support Tutor because

“...there is not much written work in my course and I get some help from some of my academic tutors if I ask for it”.

Her close friends and the tutors who mark her work knew she was dyslexic but she said, *“I really don’t want others to know.”*

“I worry about all the things I might have done wrong on what I’ve handed in.”

Triggers identified by Diane

Bright light (especially yellowish lights) and noise frequently cause her to be ill; if she has to go where there are crowds, she wears i-pod earphones which are not plugged in, just to reduce the background noise. This causes issues when her family visit her at the University.

Diane is very sensitive about her history of need for support and of being ‘labelled’ as dyslexic, which she feels makes people treat her differently.

She becomes very anxious due to pressure of her academic work, which she says is made worse for her by the lack of helpful feedback from tutors.

Strategies Diane uses to avoid CI:

Diane enjoys reading for pleasure and wears glasses with coloured lenses. She often ‘twiddles’ with her watchstrap to alleviate the need to fidget when she is anxious.

Strategies Diane has successfully used from this project:

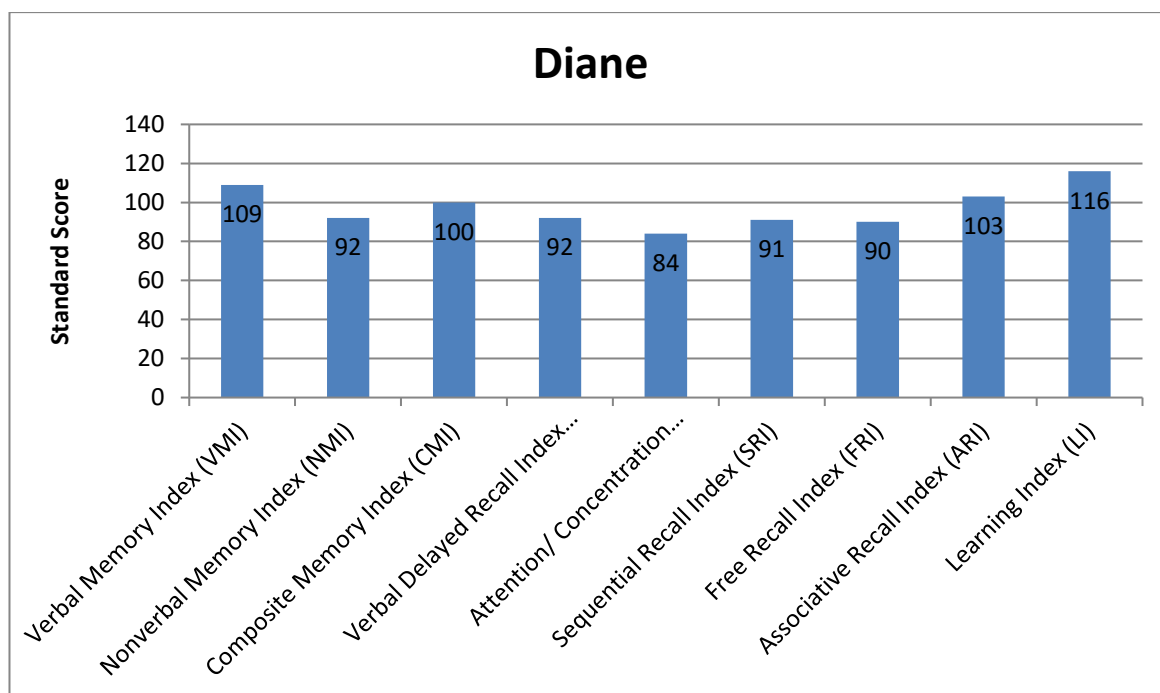
Diane has used the controlled breathing exercises very successful in reducing panic attacks. She has also found humming a tune and thinking of the words beneficial. She now uses a lavender aromatherapy candle while she relaxes and has also started to use an affirmation band regularly to good effect. Diane also uses visualisation techniques to help control her anxiety, especially when she delivers a presentation.

Diane now plans her work before she begins to write a first draft and uses the '4-minute rule' to help her overcome any 'writer's block' issues.

She has discovered advantages when using a Dictaphone to record lectures and seminars.

Diane was encouraged to consult her GP about her frequent headaches but she delayed her visit.

TOMAL-2 Profile



Standard Scores

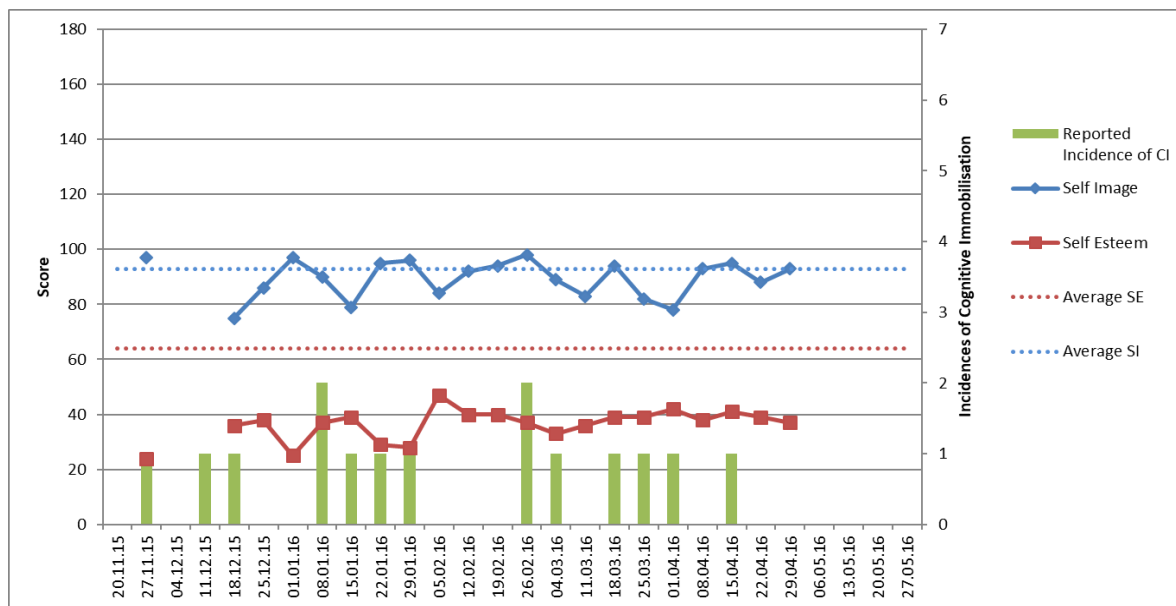
Above Average	LI
Average	VMI, NMI, CMI, VDRI, SRI, FRI, ARI
Below Average	ACI

Fluctuating Emotional Status (Incomplete Data Submitted)

Diane reported 15 incidences during 22 weeks reported

(Frequency of CI = 0.68).

The Self Image Profile for Adults (SIP-AD) and Frequency of Incidence of Cognitive Immobilisation

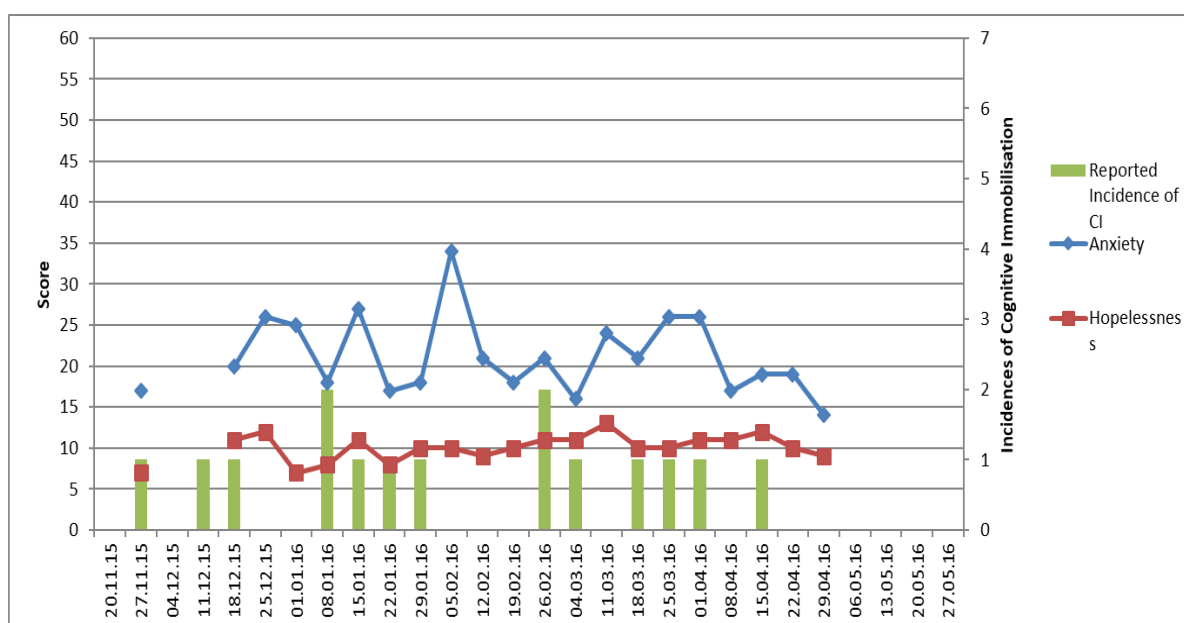


Average Self Image = 93 Average Self Esteem = 64

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Beck Anxiety Inventory, Beck Hopelessness Scale and Frequency of Incidence of Cognitive Immobilisation



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Beck Hopelessness Scale	
Score	Descriptor
0 - 3	Minimal
4 - 8	mild
9 - 14	Moderate
>14	Severe

Diane's experiences of incidences of CI throughout the project seemed to relate directly to submission deadlines for academic work. She experienced no CI when she went home during the Xmas break.

SI fluctuates usually below average, peaking at average, and the peaks do not seem to correlate with incidences of CI.

SE is higher than average throughout the project timeline, mirroring the SI but with fluctuations markedly evening out between 12/02 and 29/04.

BAI fluctuates within moderate/severe ranges and does not appear to correlate directly to incidences of CI.

BHI fluctuates only slightly within the moderate range and does not mirror the peaks in BAI, nor appear to correlate to incidences of CI.

"It's the shaky hands and going red I really don't like."

"I have a presentation in 2 weeks and I'm wondering what level I'm going to be. I can't do anything about it."

This suggests an external locus of control.

5. Lucy

Lucy was a 19-year-old female, full-time, 2nd year, undergraduate student who was identified as being dyslexic at 11 years. She was offered one-to-one support (52 hours/year, suggesting significant need for support) with a Specialist Support Tutor when she first arrived at the university – *"I tried it for a couple of hours – it was crap so don't bother."* Some students and most of the lecturers on her course knew she was dyslexic,

*"I prefer people **not** to know I am dyslexic because it is my business".*

She did not work with any of her fellow students, describing them as *"cliquey"*.

Triggers identified by Lucy

Lucy is extremely sensitive to her 'dyslexia label' and her history of needing support throughout her academic life has made her very angry. She believes the 'label' is linked to bullying, since she feels she is always treated differently to her non-dyslexic peers and told she will never do well in work. She experiences problems within paid employment, as well as personal conflicts with tutors when she feels they are not marking her work for content and giving unhelpful feedback.

She finds exams particularly stressful and suffers with pressure of academic work, which she often misunderstands. She blames this for causing her habit of procrastinating *"to the point of no return"*, which she terms, *"CBA... Can't Be Arsed Syndrome"*. IT issues add to her stress.

She also suffers frequent accidents and illnesses.

"If I have too many lectures in a row I fall asleep, even if the subject is really interesting. I do the nodding dog and fall asleep."

Lucy was encouraged by the researcher to continue to seek help from the University Counselling Service.

At end of the academic year, Lucy is considering not returning for 3rd year of her course. [She has taken a study break]

Strategies Lucy uses to avoid CI:

Lucy listens to music when trying to relax. She also wears glasses with coloured lenses to alleviate the effects of her visual stress.

She found visiting the University Wellbeing Centre, attending the University Counselling Service and having 1:1 Specialist Study Skills Support all ineffective in reducing her stress and experiences of CI.

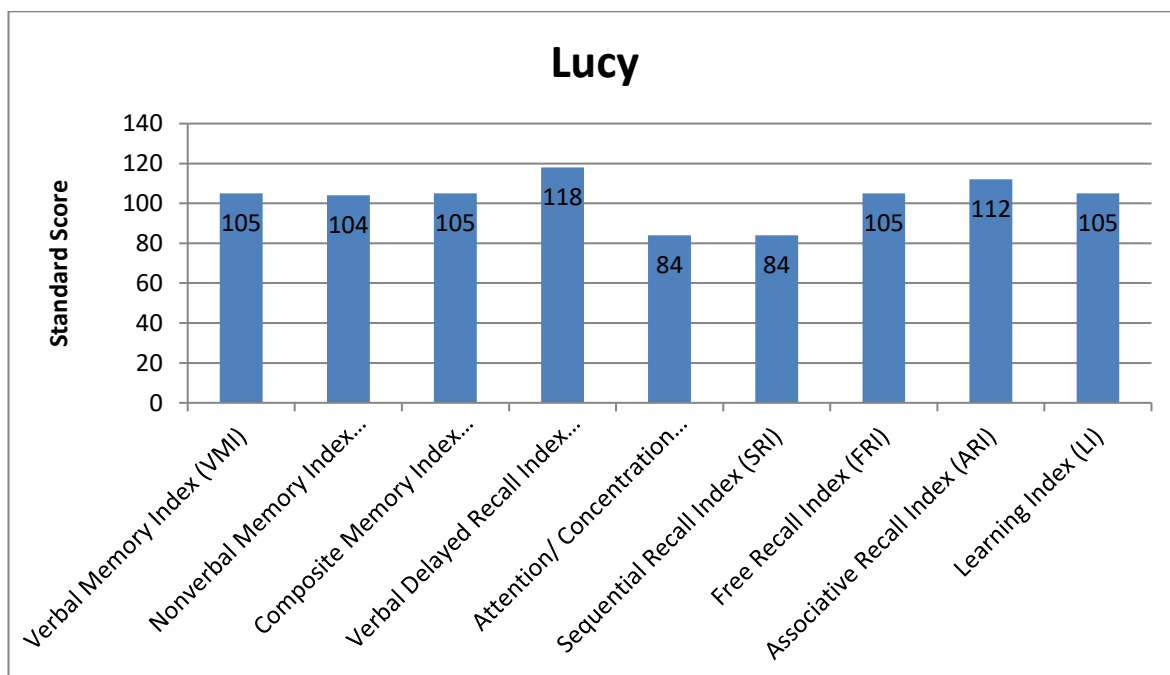
Strategies Lucy has successfully used from this project:

Lucy found having the opportunity to meet and talk regularly to be very beneficial, especially since she had to wait 6 weeks before being given her first appointment to see a University Counsellor.

She also found planning her work before beginning to write a draft and using exam and revision techniques useful.

She was able to avoid her habit of procrastinating by using the 4-minute rule, which she termed, “*Swat the fly*”

TOMAL-2 Profile



Standard Scores

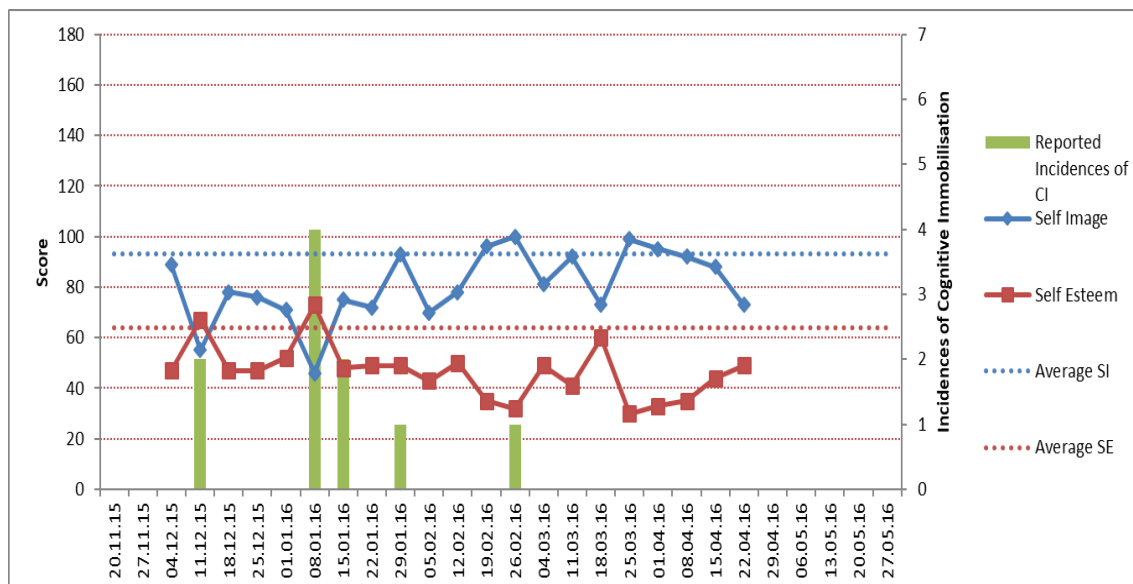
Above Average	VDRI
High Average	ARI
Average	VMI, NMI, CMI, FRI, LI
Below Average	ACI, SRI,

Fluctuating Emotional Status

Lucy reported 10 incidences during 21 weeks reported

(Frequency of CI = 0.48).

The Self Image Profile for Adults (SIP-AD) and Frequency of Incidence of Cognitive Immobilisation

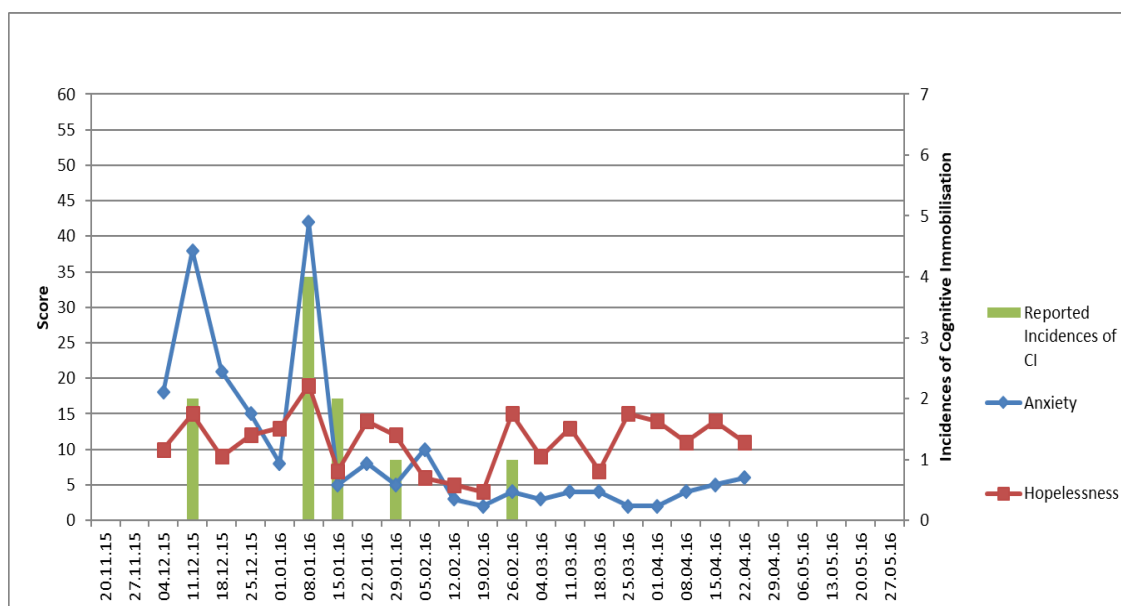


Average Self Image = 93 Average Self Esteem = 64

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Beck Anxiety Inventory, Beck Hopelessness Scale and Frequency of Incidence of Cognitive Immobalisation



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Beck Hopelessness Scale	
Score	Descriptor
0 - 3	Minimal
4 - 8	mild
9 - 14	Moderate
>14	Severe

Reported incidences of CI were attributed to the University's Internet system being down (during week ending 11/12 - "*Thwarted by the Uni!*") and stress due to exams and submission deadlines.

SI was usually below average.

SE mirrored the fluctuations in SI but was always above average.

BAI levels peaked within the very severe range during the first two weeks where CI was reported before and after Xmas (weeks ending 11/12 and 08/01). From 15/01, Lucy's anxiety level decreased significantly and from 12/02 to 22/04 it remained within the minimal range, despite incidences of CI being reported during weeks ending 29/01 and 26/02.

BHI fluctuated between the severe/moderate ranges throughout the project timeframe, peaking during the incidences of CI reported during week ending

08/01. From the week ending 12/02 Hopelessness levels fluctuated between severe and moderate ranges and were significantly higher than recorded anxiety levels. This suggests an external locus of control.

Lucy was urged to consult her GP and to apply for further counselling through the University Services.

6. Tom

Tom was a 20-year-old male, full-time, 2nd year, undergraduate student who was identified as being dyslexic at 14 years, consequently having some support at college. He was currently 'OK' with his one-to-one study skills support (34 hours/year) with a Specialist Dyslexia Support Tutor. His friends were aware he was dyslexic but,

"...tutors on my course don't act as though they know I am dyslexic. I prefer not to draw attention to it... I prefer to do something myself. Last year I froze up a lot – have been OK this year so far." (internal LoC)

Triggers identified by Tom

Tom is sensitive to the negative implications of his being "...labelled as being dyslexic" because of his history of needing support.

He suffers stress due to pressure of academic work for which he says he has unsuccessfully asked for help from his academic tutors.

"I can't really relax when I'm working. I feel a bit uneasy when I'm working. When I freeze up I just can't think, can't concentrate, can't focus. It's when I have lots to do and I try to split my time across them all that adds to it."

"There were times last year when I froze up, even though I had been doing work. The closer it gets to the end of the semester when there are deadlines, that's when it starts to hit me."

He acknowledged family and personal issues add to his distress.

Strategies Tom uses to avoid CI:

Tom often relaxes by listening to music or playing computer games, as well as exercising and visiting the gym regularly.

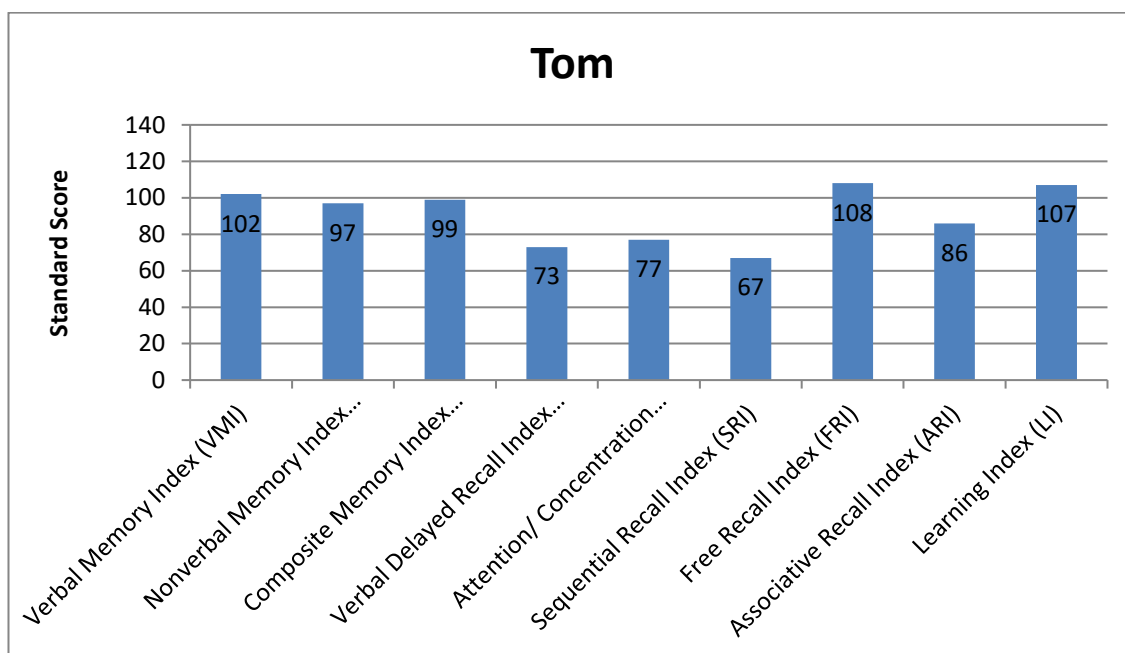
He uses coloured paper to alleviate his visual stress as required.

Strategies Tom has successfully used from this project:

Tom has discovered weekly GANTT charts aid his time management considerably, as does planning his work before starting the first draft.

He now uses exam and revision techniques (not yet offered during his 1:1 support sessions) and has found recording lectures and seminars with a Dictaphone more informative and rewarding than taking handwritten notes.

TOMAL-2 Profile



Standard Scores

Average VMI, NMI, CMI, FRI, LI

Low Average ARI

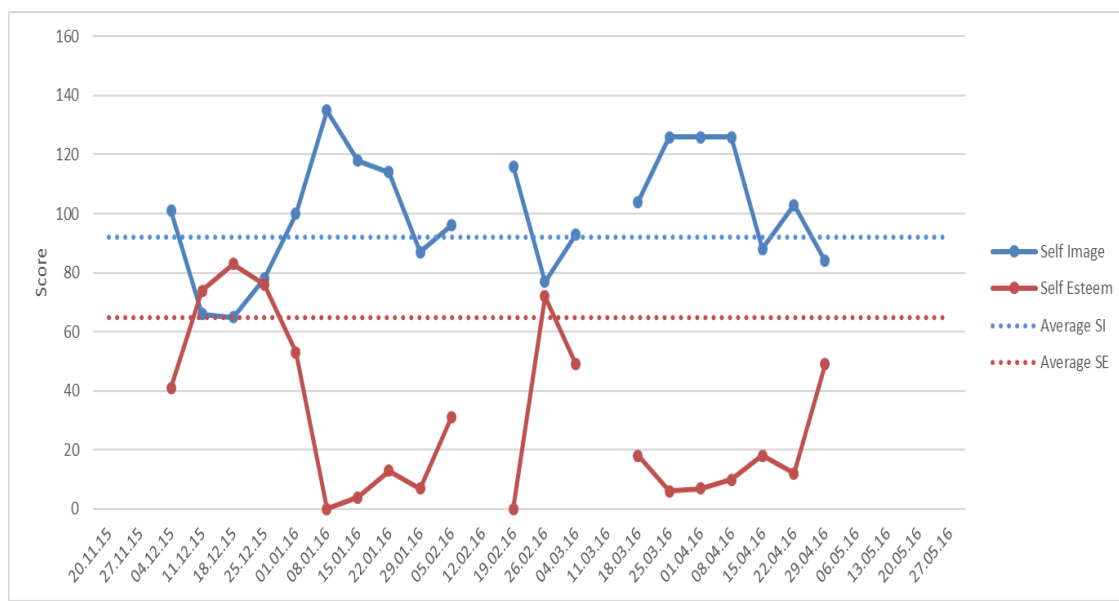
Below Average VDRI, ACI

Well Below Average SRI

Fluctuating Emotional Status (Incomplete Data Submitted)

Tom reported no incidences during 20 weeks reported
(Frequency of CI = 0.00).

The Self Image Profile for Adults (SIP-AD) and Frequency of Incidence of Cognitive Immobilisation

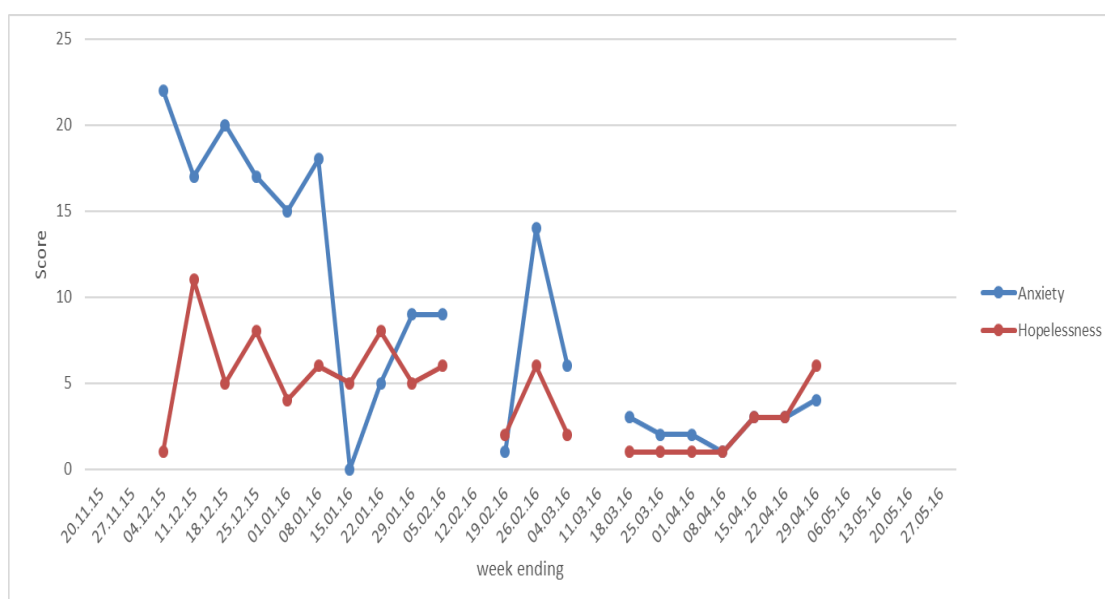


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>14	Severe

Tom reported that he did not experience any incidences of CI during this academic year.

“This year I haven’t really frozen up. I’ve had times where I’d be unmotivated but that’s just me. Last year I froze up a lot.”

SI fluctuated, usually above average apart from three dips when several written assignments were due for submission.

SE mirrored the fluctuation of SI but was well above average, apart from during the same dips mentioned above.

BAI levels were moderate until after Xmas, peaking again during February when written assignments were due for submission. From 18/03 to 29/04, Tom’s anxiety levels were minimal.

BHI peaked within the moderate range before Xmas, thereafter fluctuating between the minimal/mild ranges.

Tom's steady, low levels for anxiety and hopelessness from pre-Easter onwards, together with the absence of CI throughout the whole year suggest an internal locus of control.

7. Paula

Paula was a 21-year-old female, full-time, 3rd year, undergraduate student who was identified as being dyslexic at 18 years in 1st year at the University. She was offered one-to-one support with a Specialist Support Tutor but it took too long to organise so she does not currently have support. She was also awarded a notetaker but no-one has been assigned to her yet, so she was signposted by the researcher to enquire about this at the University Wellbeing Centre. Her friends and tutors on her course knew she was dyslexic and she did not mind if people knew this.

Triggers identified by Paula

Paula said she suffers frequent illness, which she mainly attributes to being "*permanently stressed out and panicking*" due to pressure of academic work and then because she misunderstands what is being asked in her academic work. She recalled a history of learning difficulties and felt that she has always been "...*labelled as thick...*", but was only identified as being dyslexic when she first came to the University two years ago. She has unsuccessfully asked for help from tutors and felt she is treated differently in lectures, eg lecturers have presented PowerPoint slides with background colours which rendered them unreadable to her.

Strategies Paula uses to avoid CI:

Paula enjoys listening to music to help her relax and she tends to "*walk away*" from stressful situations when possible.

She prints learning materials on coloured paper as she has a visual disturbance making reading black print on white paper extremely difficult; unfortunately, she has been given exams on white paper, despite her needs assessment report including this requirement.

Strategies Paula has successfully used from this project:

Paula says she has found having the opportunity to meet and talk frequently to be very reassuring. She has also followed the researcher's advice to seek referral to the University Counselling Service through the Wellbeing Centre and has benefitted from attending a course of counselling sessions. She was also encouraged to consult her GP about her high anxiety levels.

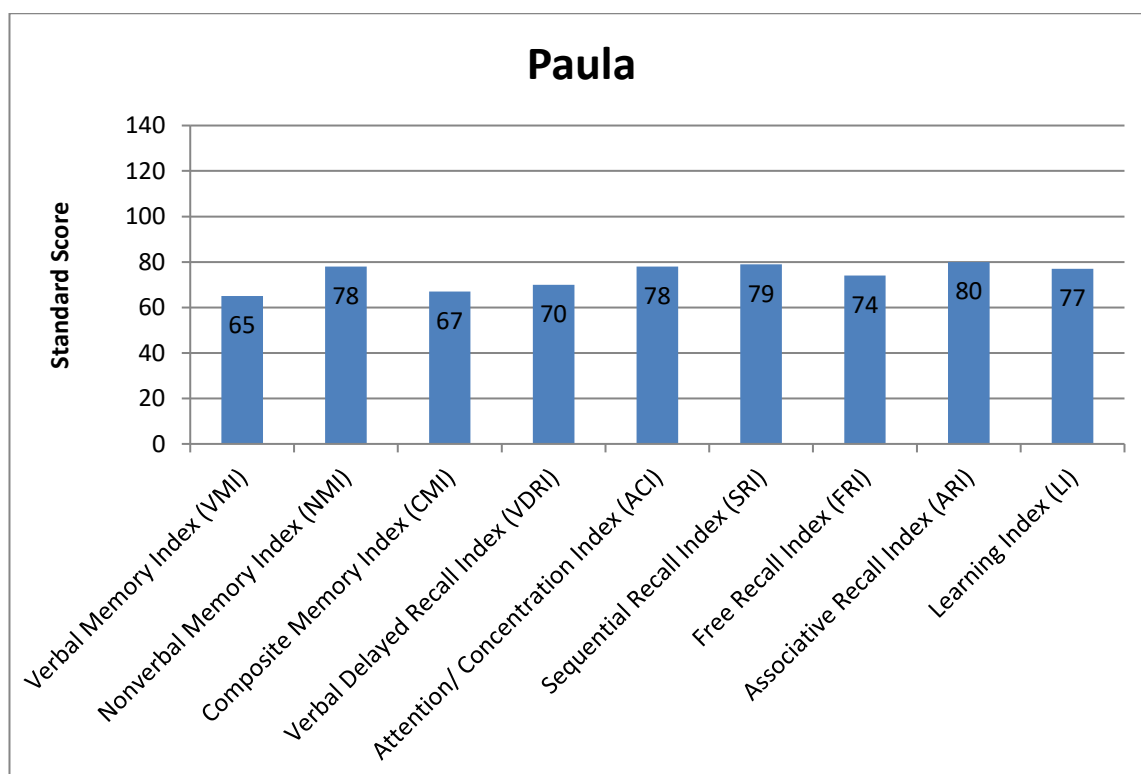
Paula now uses a Dictaphone to record lectures and has benefitted from using specialist exam techniques learned during this project.

Since her TOMAL-2 assessment at the start of this phase of the research project, she has used 2 orange glass nuggets (used in the assessment) in place

of a stress ball to alleviate her need to fidget when trying to concentrate. She has also practised meditation, visualisation and controlled breathing techniques successfully to reduce her anxiety levels.

Paula also now finds aromatherapy helps to reduce her anxiety levels: she uses Lavender (on a tissue) when relaxing and Rosemary when revising for exams. She has made effective use of exam and revision techniques in her re-sit exams.

TOMAL-2 Profile



Standard Scores

Below Average NMI, VDRI, ACI, SRI, FRI, ARI, LI

Well Below Average VMI, CMI

Paula commented

“I’ve always thought I was a visual learner but I never thought to sort of stick to it because I didn’t realise it was a proper strength of mine”.

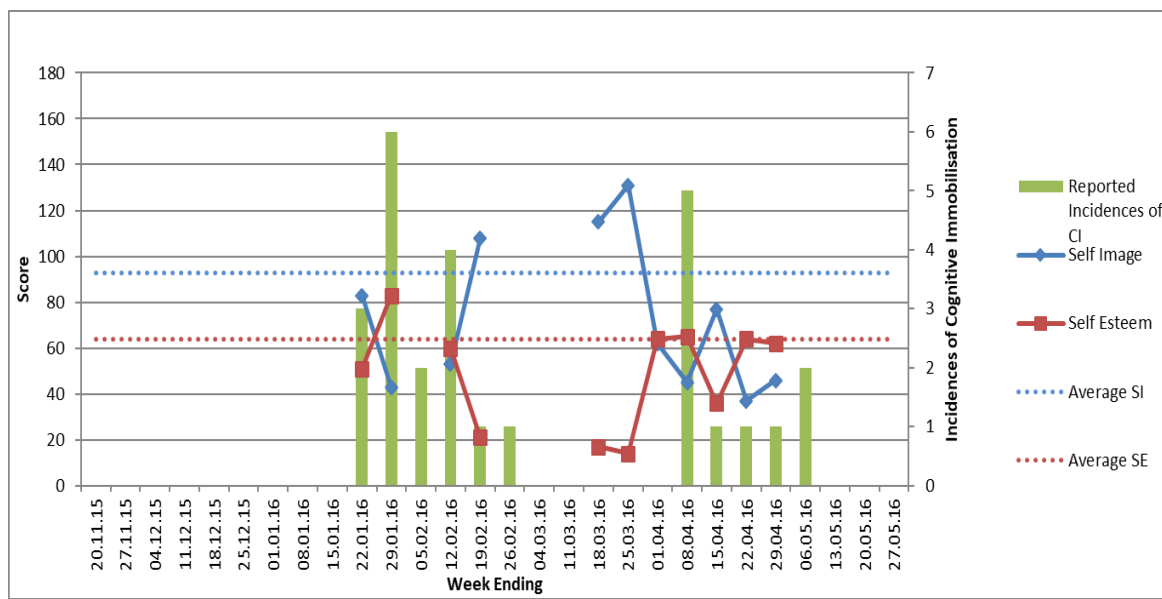
She intends to try mind mapping when she is planning any written work in future.

Fluctuating Emotional Status (Incomplete Data Submitted)

Paula reported 27 incidences during 14 weeks reported

(Frequency of CI = 1.93).

The Self Image Profile for Adults (SIP-AD) and Frequency of Incidence of Cognitive Immobilisation

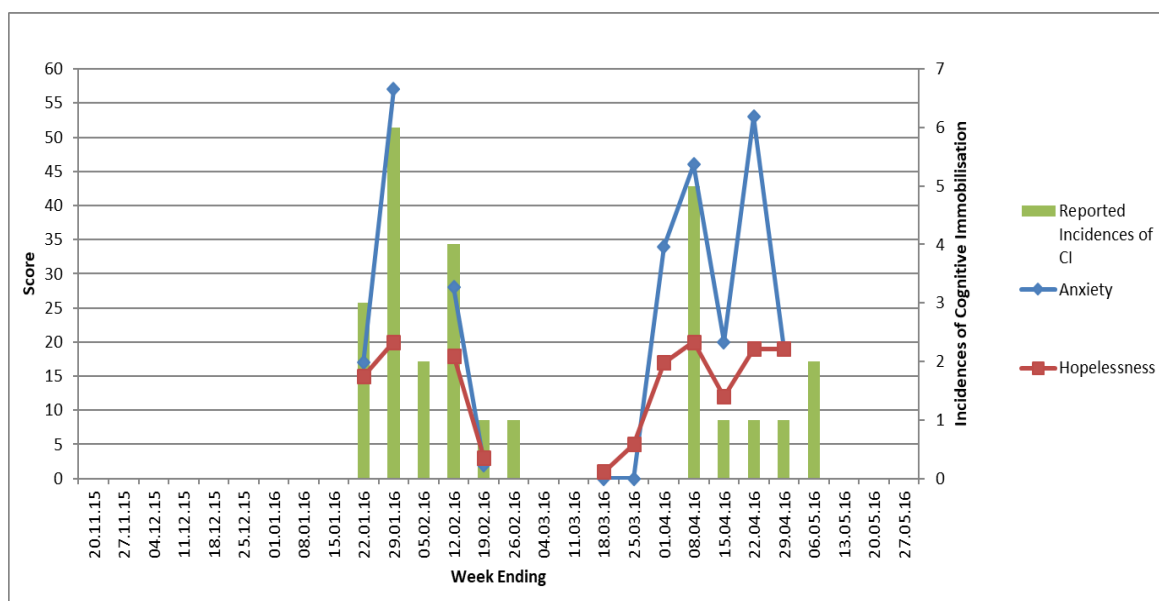


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4 - 8	mild
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Paula recorded the highest frequency of CI (27 incidences during the 14 weeks reported), with one week just after Xmas recording 6 incidences, coinciding to her being told she had failed two exams which she will need to retake.

Paula was sometimes too stressed to complete the monitoring forms; however, from the data collected her SI was rarely above average, and the fluctuations were mirrored by her SE levels.

She reported extremely high peaks of BAI corresponding to incidences of CI. Over the Easter Break her anxiety levels were minimal but increased to severe when she returned to university.

BHI fluctuations mirrored those of BAI, with an increase in hopelessness levels to severe, sometimes corresponding to an incidence of CI, after recording minimal levels during the Easter break.

She has had to re-sit some exams and had assignment work deferred to her final year

Paula was urged to consult her GP and to apply for further counselling through the University Services.

Paula's persistently high levels of anxiety and hopelessness suggest an external locus of control.

8. Judy

Judy was a 20-year-old female, full-time, 3rd year, undergraduate student who was identified as being dyslexic at 7 years old:

"When I was 7, xxxx described me as having the cognitive ability to build an atom bomb and the reading age of a gnat – things have not changed much."

At the beginning of her 2nd year Judy was offered 40 hrs/year 1:1 dyslexia support with a Specialist Support Tutor, but after trying it for 3 hrs, she decided it was not helpful so did not continue with it.

Judy thought her tutors and other students on her course knew she was dyslexic, but she commented that she doesn't mind who knows as

"...it won't make any difference".

"(I have) A great sense of irony, and I am not going to let this bugger beat me."

Triggers identified by Judy

Judy said she has always been very conscious of being 'labelled' as being dyslexic and felt angry that this affected her life so much.

She often suffers illness which she also linked to family and personal issues. She admits to fainting in extreme cases of anxiety and has sought medical assistance.

She suffers from pressure of academic work and often misunderstands her academic requirements which causes her to procrastinate. She is unhappy with the way her course is run and has asked unsuccessfully for help from tutors. She says the lack of helpful feedback from tutors has given rise to personal conflicts in some cases.

Strategies Judy uses to avoid CI:

Judy prefers to walk away or play board games when her state of anxiety becomes critical and she 'freezes up'.

She prefers to work on coloured paper and wears glasses with coloured lenses.

Strategies Judy has successfully used from this project:

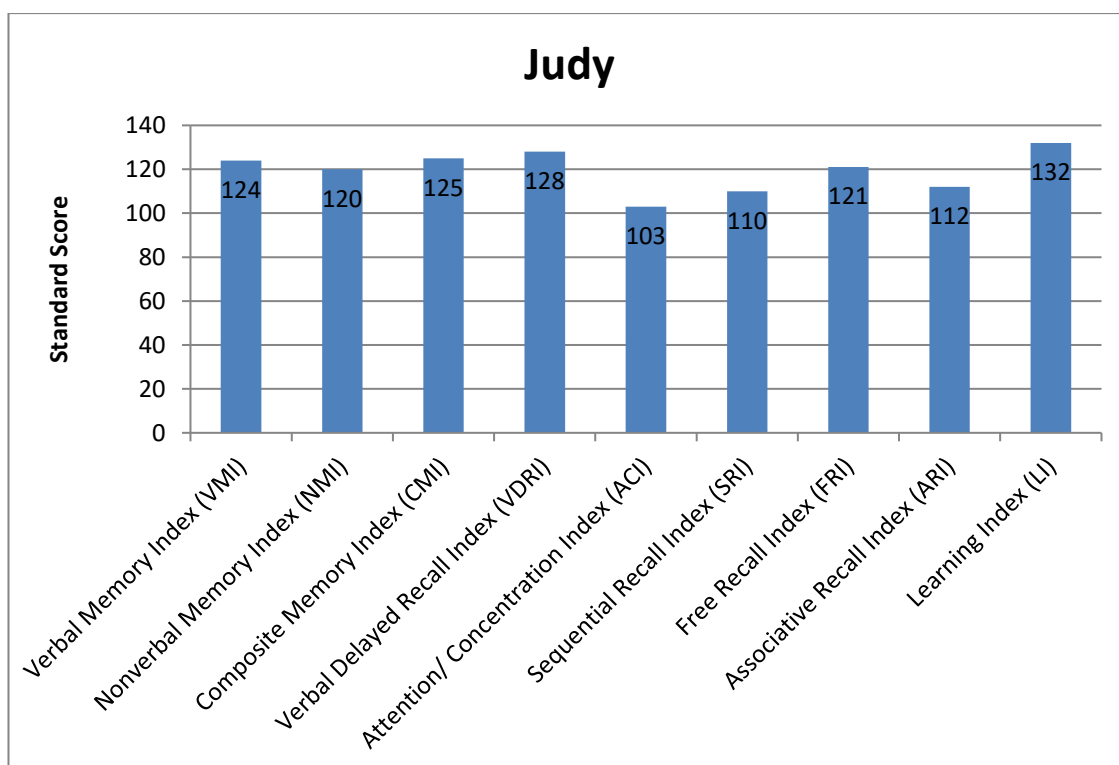
(Judy found neither meditation/mindfulness nor controlled breathing useful to her in reducing her levels of anxiety.)

Judy has found having the opportunity to meet and talk frequently has been very beneficial. She has found using weekly GANTT charts, planning her work before beginning to write first draft and applying new exam and revision techniques have all been advantageous.

Previously, Judy has frozen up when being questioned by someone and she could not answer as quickly as she felt she needed to, however she has successfully used the following strategy: She puts her hand up, palm towards the questioner and asks them to stop for a moment to allow her to formulate her answer. She then continues, repeating her request like a 'broken record' until she is comfortable to proceed.

She has also successfully practised a few selected phrases for use in situations where she has previously frozen up, so she is familiar with an appropriate phrase to use.

TOMAL-2 Profile



Standard Scores

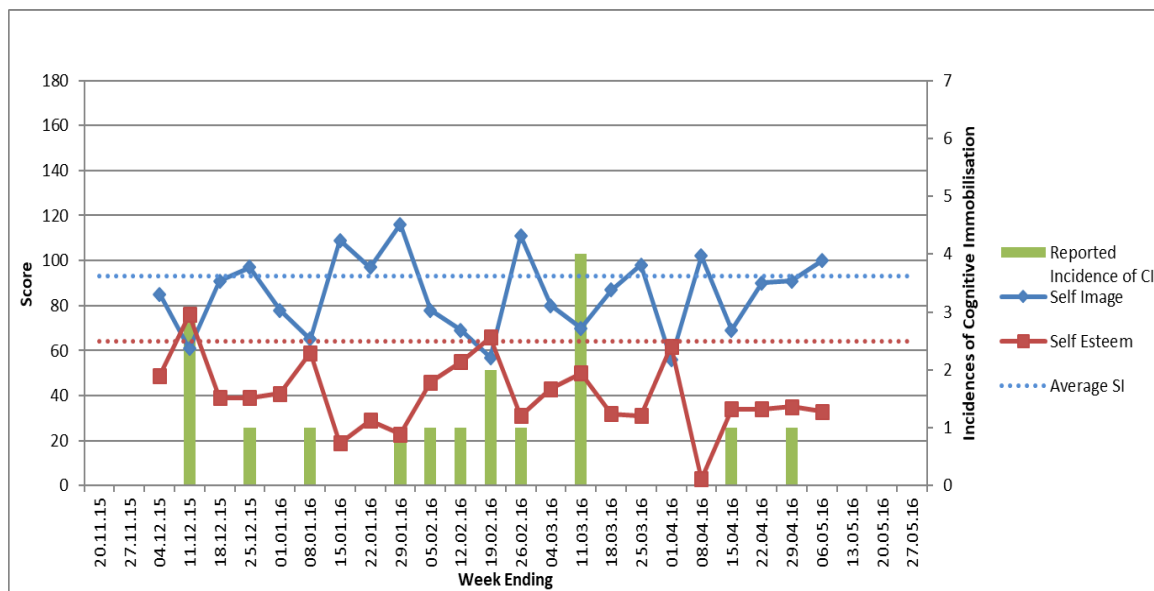
Well Above Average	LI
Above Average	VMI, NMI, CMI, FRI, VDRI
High Average	ARI
Average	ACI, SRI

Fluctuating Emotional Status

Judy reported 17 incidences during 23 weeks reported

(Frequency of CI = 0.74).

The Self Image Profile for Adults (SIP-AD) and Frequency of Incidence of Cognitive Immobilisation

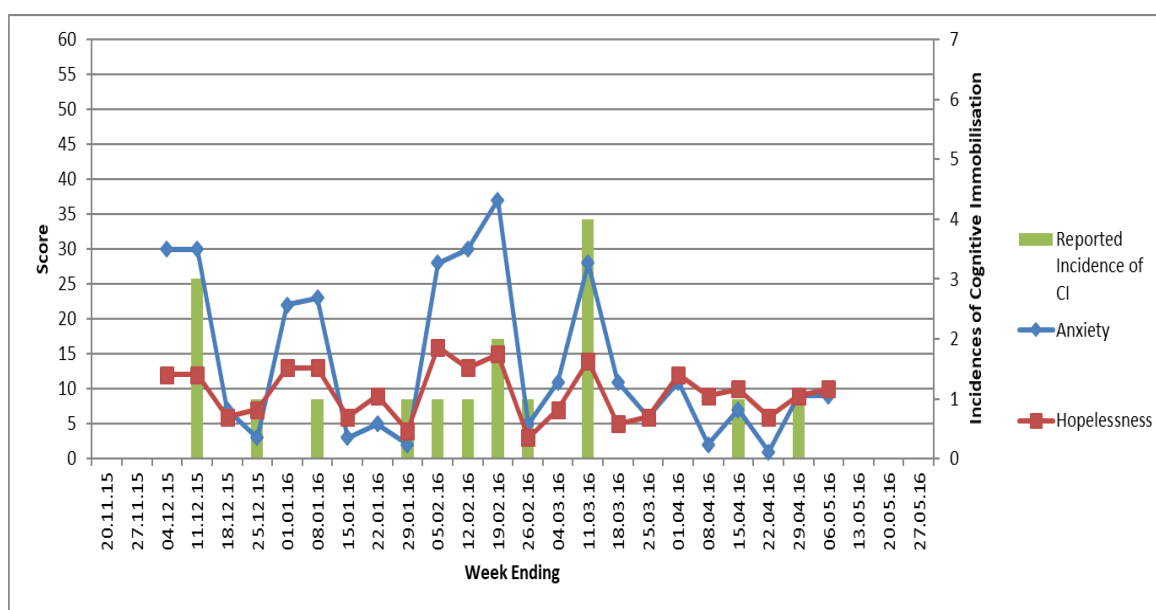


Average Self Image = 93 Average Self Esteem = 64

[NB Higher score for Self Esteem = lower level of Self-Esteem since it is a measure of the discrepancy between the scores of “where I think I am now” and “where I would like to be”, on the same scale.

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Beck Anxiety Inventory, Beck Hopelessness Scale and Frequency of Incidence of Cognitive Immobilisation



Key	
Beck Anxiety Inventory	
Score	Descriptor
0 - 7	Minimal anxiety
8 - 15	Mild anxiety
16 - 23	Moderate anxiety
26 - 63	Severe anxiety
Beck Hopelessness Scale	
Score	Descriptor
0 - 3	Minimal
4 - 8	mild
9 - 14	Moderate
>14	Severe

Falls in SI and SE levels appear to trigger incidences of CI. There were no incidences of CI reported over the Easter break, when Judy was also suffering from 'flu.

SI fluctuations are above and below average and mirror the fluctuations in SE, although SE is usually above or well above average.

There are three peaks of severe anxiety when the BAI levels coincide with incidences of CI triggered by submission dates and a further peak within the moderate range during CI triggered by exams. After Easter, anxiety levels range between mild and minimal even though there are two more incidences of CI triggered by the last assignments of the year.

BHI levels fluctuate between mild and severe, roughly mirroring the peaks in anxiety and relating to CI. Levels for hopelessness are usually between moderate to severe.

Judy was encouraged to consult her GP concerning her tendency to faint under stress.

This profile would suggest Judy has struggled to maintain an internal locus of control (*"I sat at a computer non-stop for about 12 hours a day all week"*), but her high level of BHI persists, suggesting an external locus of control currently exists for her.

At end of the academic year, Judy is not returning to begin an MSc course, as she originally intended, but will be taking a year's study break.

9. Wendy

Wendy was a 20-year-old female, full-time, 2nd year, undergraduate student who was considered dyslexic in primary school but only identified as being dyslexic at 16 years at college. She was not currently having 1:1 study skills support with a Specialist Support Tutor –

"My last support tutor had a library book on dyslexia and she read bits out of it to me and she spent 2 weeks solid on referencing. I think I would have done much better if I'd had a support tutor with a scientific background."

Wendy did not mind that most tutors and other students on her course knew she was dyslexic.

Triggers identified by Wendy

Wendy was considered to be dyslexic at primary school and her subsequent history of need and provision of support has, she feels, given her a 'label' and been the cause of bullying throughout her academic life. She still feels she is treated differently from her non-dyslexic peers and this has caused her much distress and anger.

"When they get good marks and they did it the day before and I've worked on something for 2 weeks and they get better marks than me, that's not very nice." (sic)

She lacks self-confidence in social settings.

When she was among those not chosen to take an educational trip, Wendy commented:

"I got really upset about it...I was in a bad mood anyway so I was just throwing stuff...and it got to the point where I just started thinking that everything was bad and it wasn't just that and I'm never going to get anything in life."

She suffers frequently from illness (*"Like, when I get really anxious I get a bad pain in my side and it's almost like...someone stabbed me, so I, like, panic a bit"*) which she believes is exacerbated by family and personal issues, as well

as her unsuccessful attempts to separate social & academic stress. The researcher recommended Wendy should consult her GP about these symptoms.

Wendy says she often misunderstands what is required in her academic work and she has unsuccessfully asked for help from tutors, causing her to procrastinate when faced with assignments.

"I had to write a report but I didn't know how to write a discussion, I didn't even know how to begin it so I just sat there frozen in front of the computer. I had all the info. And I was ok once I had started but I just sat there for a couple of hours. I just didn't know what to do."

She did not like how her course was run and her views have given rise to personal conflicts with some of her tutors. Referring to some written feedback from a tutor who is aware of Wendy's dyslexia, she commented:

"She marked it and commented on all my spelling...I looked in the speech bubbles and it said spell, spell, spell...I could not physically read this at the moment 'cos I got so angry with her."

Strategies Wendy uses to avoid CI:

Wendy has found visiting the University Wellbeing Centre supportive but has not accepted the 1:1 specialist dyslexia support offered to her resulting from her needs assessment.

Wendy recognised she experiences 'good days and bad days'

"When I have a bad day, basically I stay in my bedroom for as long as I can".

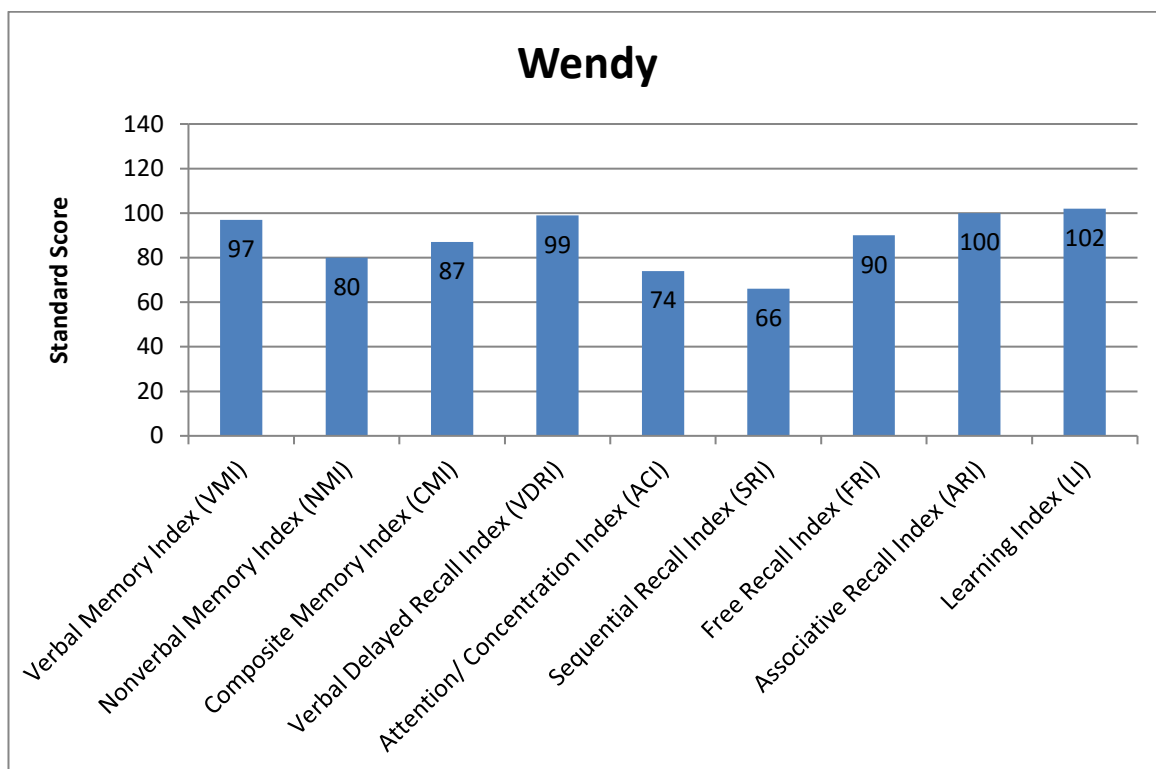
When she feels very anxious she walks away from the stressful situation whenever possible. Wendy also finds twiddling with a bracelet helps her to concentrate sometimes. She finds working on coloured paper alleviates the adverse effects of her visual stress.

Strategies Wendy has successfully used from this project:

Wendy found having the opportunity to meet and talk regularly very helpful in reducing her levels of anxiety and stress and she has found practising controlled breathing very beneficial. She has identified and practised a collection of 'stock phrases' which she uses, especially to help her join in conversations, both in academic seminars and social gatherings.

Wendy now finds using weekly GANTT charts affords her more efficient time management. She is also using new exam and revision techniques, in conjunction with using revision/crib cards to help with presentations.

TOMAL-2 Profile for Wendy



Standard Scores

Average VMI, VDRI, FRI, ARI, LI

Low Average CMI,

Below Average NMI, ACI

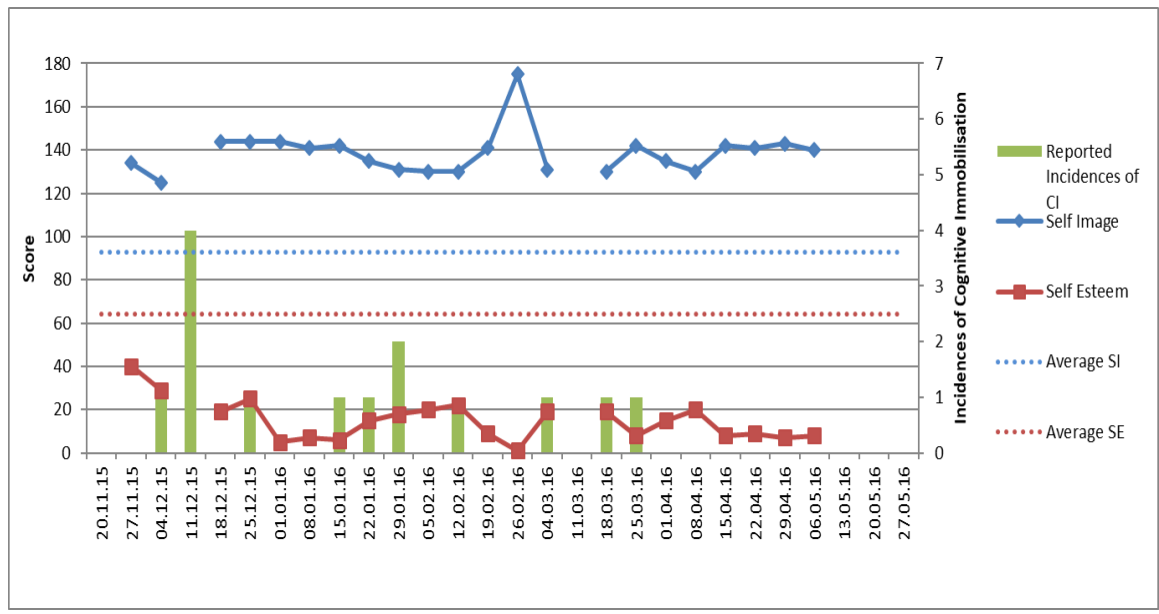
Well Below Average SRI

Fluctuating Emotional Status (Incomplete Data Submitted)

Wendy reported 14 incidences during 23 weeks reported

(Frequency of CI = 0.61).

The Self Image Profile for Adults (SIP-AD) and Frequency of Incidence of Cognitive Immobilisation

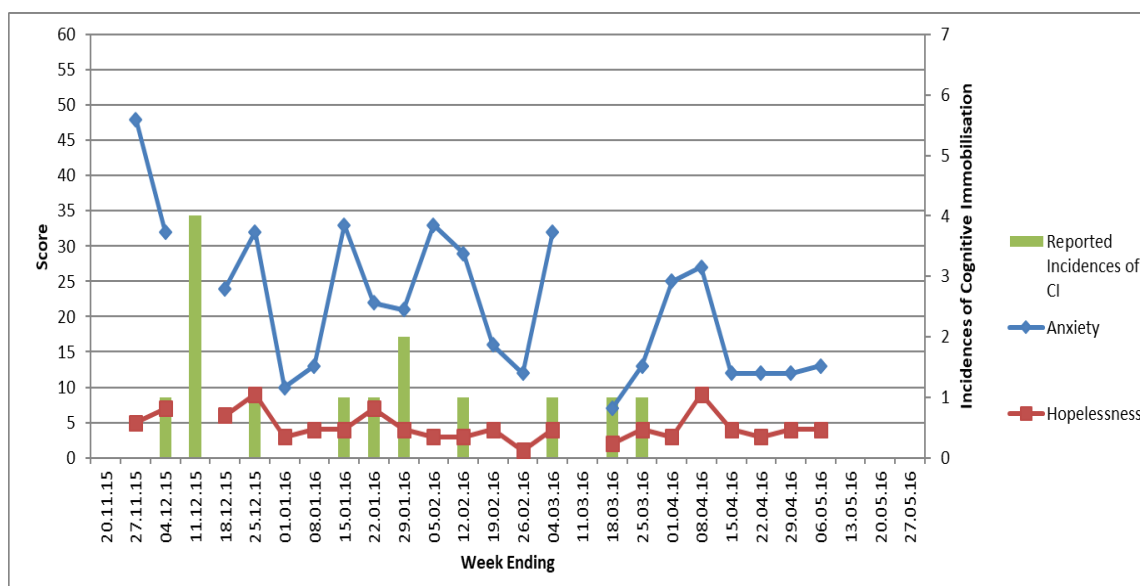


Average Self Image = 93 Average Self Esteem = 64

[NB Higher score for Self Esteem = lower level of Self-Esteem since it is a measure of the discrepancy between the scores of “where I think I am now” and “where I would like to be”, on the same scale.

A lower score for this discrepancy (=score for Self-Esteem) represents the individual feeling nearer to “where I would like to be”, suggesting a higher level of Self-Esteem. Therefore a score of 0 for self-esteem would suggest the highest level of self-esteem as the individual feels ‘they are where they would like to be at the present time’.]

Beck Anxiety Inventory, Beck Hopelessness Scale and Frequency of Incidence of Cognitive Immobilisation



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Beck Hopelessness Scale	
Score	Descriptor
0 - 3	Minimal
4 - 8	mild
9 - 14	Moderate
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Before Xmas 4 incidences of CI in wk ending 11/12 but thereafter usually only one incidence of CI in some weeks. None after week ending 01/04, even though Wendy had end of year exams and assignments to due for submission.

Wendy's self-image level was consistently above average with little fluctuation throughout the monitoring period. These levels were mirrored by those of her self-esteem which was also consistently above average. Recorded incidences of CI did not appear to influence, or be influenced by, Wendy's levels of self-image or self-esteem.

Wendy's BAI levels fluctuated widely between mild and severe with rises in anxiety appearing to correspond to, or follow, incidences of CI.

BHI levels fluctuated slightly, mirroring the peaks in anxiety level, but remained usually on the border between minimum – mild hopelessness.

Wendy was encouraged to consult her GP concerning her physical pain and high levels of anxiety when under stress.

This profile would suggest Wendy displays an internal locus of control, despite periods with high levels of anxiety, and comments (above) which may suggest the contrary.

10. Pearl

Pearl was a 21-year-old female, full-time, 3rd year, undergraduate student who was identified as being dyslexic at 17 years, in the 6th form at school. She was currently pleased with her 1:1 study skills support with a Specialist Dyslexia Support Tutor. Her tutors and friends on her course were aware she was dyslexic and she was "...*not bothered who knows*". Because of her expressed extreme anxiety and depression, Pearl was encouraged by the researcher to contact the University Counselling Service (she declined). She is most concerned that no-one becomes aware of this,

"I wouldn't want people to know about my anxiety and depression though, 'cos that's something more personal...more stigma attached to males I think...can't show their emotions or cry...it is so stupid but it is human nature."

The researcher also encouraged Pearl to consult her GP about her anxiety levels, but she persistently delayed doing so throughout the project.

Triggers identified by Pearl

Pearl described suffering from extreme anxiety which frequently causes illness, which she believes is often related personal issues. She is conscious of being 'labelled' as someone who needs and receives extra help with her academic work. She says she constantly suffers from the pressure of her academic work.

Strategies Pearl uses to avoid CI:

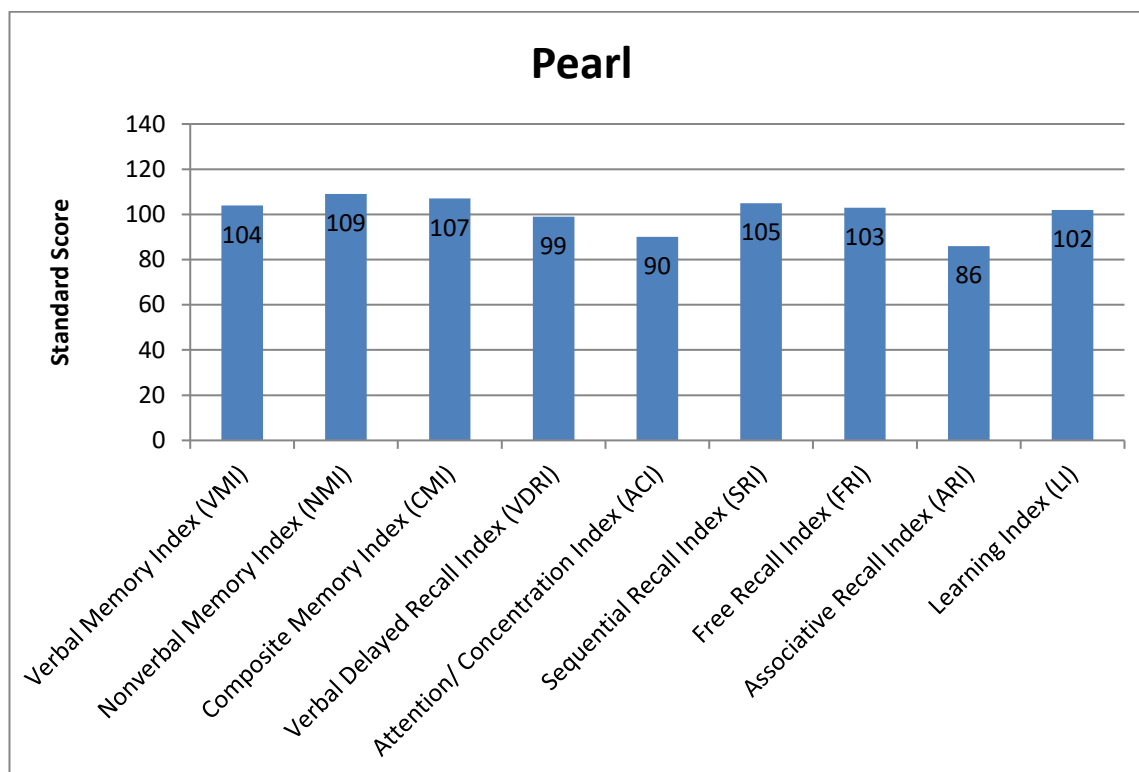
Whenever possible, Pearl walks away from very stressful situations but this is not always possible with her choice of academic course.

She finds attending 1:1 support sessions very useful and prefers to work on coloured paper to relieve her visual stress symptoms.

Strategies Pearl has successfully used from this project:

Pearl has found having the opportunity to meet and talk regularly a "...*good stress-relief strategy*". She has also found visualisation and controlled breathing techniques, using a stress ball (she uses an orange glass nugget used during the TOMAL-2 assessment) and using aromatherapy all very beneficial in reducing her anxiety and stress levels.

TOMAL-2 Profile



Standard Scores

Average VMI, NMI, CMI, VDRI, ACI, SRI, FRI, LI

Low Average ARI

NB: Pearl withdrew from certain aspects of this research project, as was her right, but was most anxious to continue with other parts and that data relating to her TOMAL-2 assessment and her participation in the regular interviews/monitoring meetings should be included in the final analysis.

In view of her repeated comments concerning her wish to conceal her anxiety and depression, the data collected from the self-completion forms are disregarded as invalid and it should be regarded as significant that they did not agree with the qualitative data gathered from her regular ongoing monitoring interviews.

Fluctuating Emotional Status (Incomplete Data Submitted)

Pearl reported 18 incidences during 21 weeks reported

(Frequency of CI = 0.86).

Pearl reported 5 incidences of CI during each of 2 weeks ending 19/02 and 22/04 when assignment deadlines for submission occurred; weeks ending 18/03 and 25/03 coinciding with the submission of Pearl's final year dissertation.

From Pearl's comments given during the monitoring interviews, she specified that her usually high anxiety level was raised further during incidences of CI which she reported.

Pearl's frequent comments also closely matched some of the negative aspects of hopelessness, as defined in the BHS questionnaire:

"I'm uncertain about my future and I can't imagine what my life might be like in a few years ...

Things never seem to work out how I'd like them to and I don't see that changing.

Other people seem to do alright. They are luckier than me" (sic).

This profile suggests an external locus of control.

"Why am I at uni? Can't do it...feel stupid...anxiseuse." (sic)

Pearl told the researcher several times during monitoring meetings that she could not wait to complete this course as she would

"...never enrol as a student for anything ever again."

11. Brian

Brian was a 32-year-old male, full-time, postgraduate student who was identified as being dyslexic at 28 years. He was currently "OK" with his 1:1 study skills support with a Specialist Dyslexia Support Tutor, although he adds that he feels attending this support

"...eats into time I want to use for my work".

"I didn't pass a module lately. I wasn't wise enough. I have support but I have that many assignments I haven't really got the time to go for the support."

His tutors and friends on his course were aware he was dyslexic and he was "OK" with this.

Triggers identified by Brian

Although Brian was formally identified as dyslexic at the age of 28, he acknowledged he had a history of need for support throughout his academic life.

"I have been in conversations where I lose my train of thought, I ask things twice, but then that's normal, it's just how I am."

He said he hated to have the 'label' of dyslexia and has been told he "...won't do well" because of it, which makes him very angry.

He feels he is treated differently from non-dyslexic peers, suffers bullying and has experienced personal conflicts with some of his tutors. Brian commented on his perception of how others see him thus:

"You should not be dyslexic and expect to take a place at university. Even if you are not harming anyone else your presents [sic] here just offends everyone else."

Brian said he had unsuccessfully asked for help from tutors ("When I asked for extensions I was made to feel bad"), as he frequently misunderstands his academic work and said his tutors do not mark his work for its content, giving unhelpful feedback or none at all. This leads him to procrastinate and increases his pressure to complete his academic work. Brian said he needed a lot of repetition to remember things.

IT issues cause him still more stress.

"I've been to the IT Centre with my computer. I opened it the other day and it's updated to Windows 10... now everything's changed: My Dragon doesn't work, Read and Write doesn't work and the specialised software from DSA doesn't work!"

"Working on a computer with SPSS in a workshop... it was terrible yesterday... it was like someone speaking another language... too much information coming from different angles. I just froze up and sat there."

He did not like the way his course was run.

"I'm going to make the most expensive mistake of my life. I don't even feel I'm in the same race as I'm disadvantaged whatever way I look at it, and the only way to escape it is to do your own thing."

He suffers ongoing illnesses, which he said are exacerbated by stress in his paid employment, as well as family and personal issues. He recognised his attempt to separate the stress from his social life from that of his academic life continues to be unsuccessful.

Strategies Brian uses to avoid CI:

Brian regularly attends his 1:1 support sessions and works on coloured paper when possible, due to his visual stress.

He prefers to walk away from very stressful situations and listens to music or visits the gym.

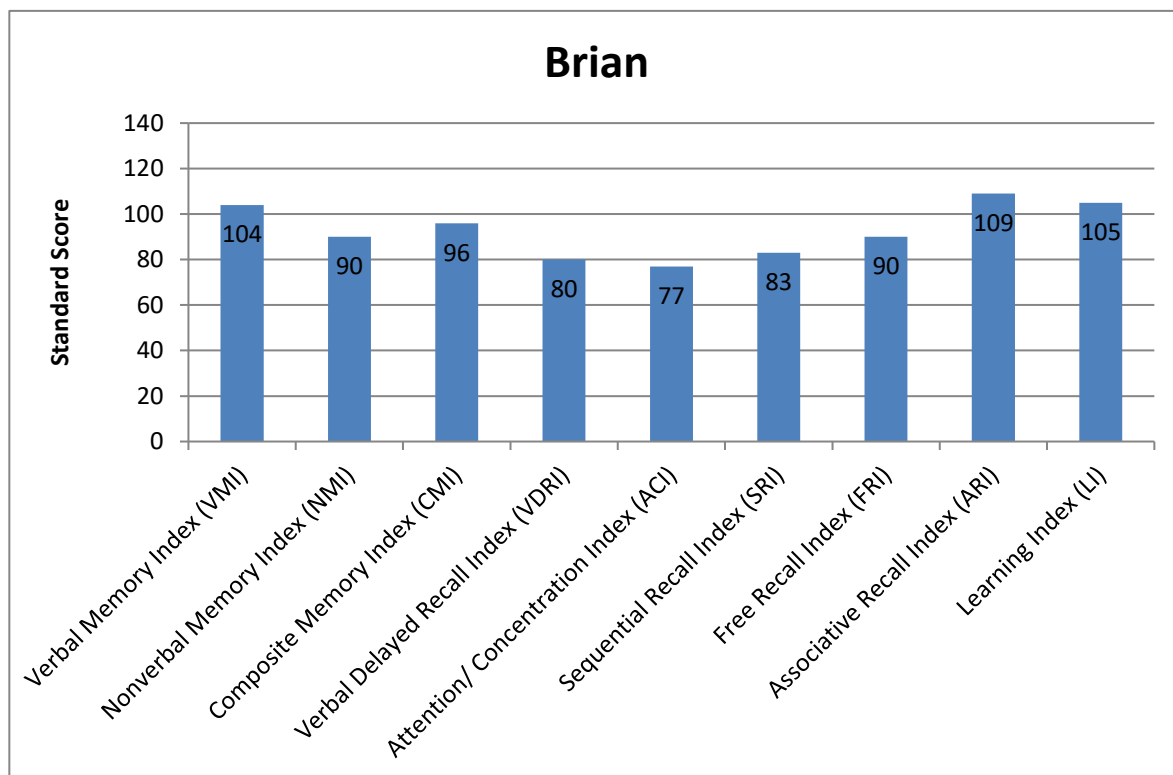
To avoid procrastinating when beginning work he sets a kitchen timer for 25 mins and tries to work till it goes off, often carrying on once he has made a start.

Strategies Brian has successfully used from this project:

Brian found having the opportunity to meet and talk frequently to be most beneficial to him. He also now uses meditation, Mindfulness and controlled

breathing techniques very successfully in reducing his stress and anxiety levels. He has found the Roman Room memory aid useful.

TOMAL-2 Profile



Standard Scores

Average VMI, NMI, CMI, FRI, ARI, LI

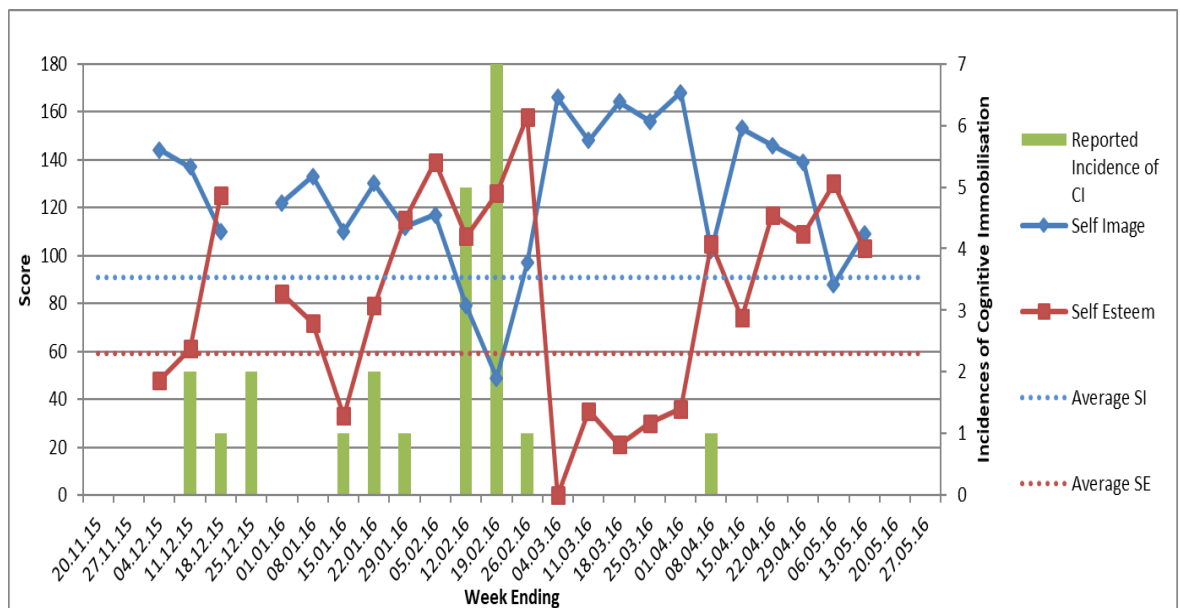
Below Average VDRI ACI, SRI,

Fluctuating Emotional Status (Incomplete Data Submitted)

Brian reported 23 incidences during 24 weeks reported

(Frequency of CI = 0.96).

The Self Image Profile for Adults (SIP-AD) and Frequency of Incidence of Cognitive Immobilisation

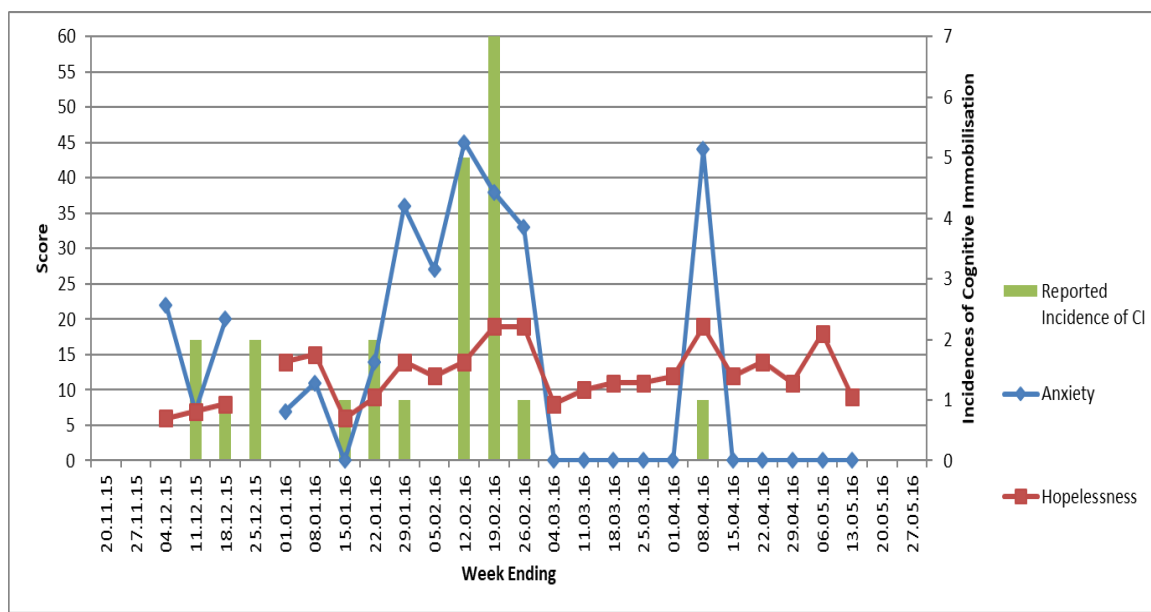


Average Self Image = 93 Average Self Esteem = 64

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Beck Anxiety Inventory, Beck Hopelessness Scale and Frequency of Incidence of Cognitive Immobalisation



Key	
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8 - 15	Mild anxiety
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26 - 63	Severe anxiety
Beck Hopelessness Scale	
Score	Descriptor
0 - 3	Minimal
4 - 8	mild
9 - 14	Moderate
>14	Severe

Brian experienced incidences of CI regularly until week ending 04/03, after which he only experienced one incidence of CI in week ending 08/04 when he was hospitalised, until his last data entries for week ending 3/05. The incidences of CI coincided with Brian learning of his results and starting a new class, but the highest frequencies of CI were recorded during week ending 12/02 (5 incidences) and week ending 19/02 (7 incidences), both of which coincided with high levels of stress associated with assignment submissions. On 19/02, Brian wrote in his diary:

“...to be honest, I’m worried but a part of me no longer cares.”

Brian’s self-image level was above average except for the two weeks with the highest frequency of CI mentioned above when his self-image level dipped

below average. Other weeks where CI was reported also caused dips in self-image levels but not to the same extent.

Brian's self-esteem levels were not often above average, but the fluctuations tended to mirror those of self-image. Frequency of CI did not always appear to influence Brian's self-esteem, which decreased steadily from its highest level in week ending 04/03 to his last data entries.

Brian's BAI levels fluctuated widely between mild and severe anxiety levels with rises in anxiety appearing to corresponding to, or following, the frequency of incidences of CI. From week ending 04/03 to week ending 13/05 Brian reported minimal levels of anxiety, apart from a sharp increase to a severe level of anxiety in week ending 08/04, coinciding with his hospitalisation.

Brian's BHI levels fluctuated between mild and severe hopelessness levels with slight increases mirroring the peaks in anxiety level. From week ending 04/03 to week ending 13/05, Brian's level of hopelessness consistently registered above his reported level of anxiety, suggesting an external locus of control, contrary to his reported levels of self-image and self-esteem over the same period.

"I'm thinking maybe it's time I just accepted that I am not going to work in the areas that I wanted to, but, you know ... I'll probably... as much as I wanted to be a teacher or something in the past, I'm not going to do it because I wouldn't be able to do the paperwork."

On the self-reporting form for hopelessness (BHI), Brian consistently agrees with such statements as:

'Things just won't work out the way I want them to'; 'It's very unlikely that I will get any real satisfaction in the future' and 'There's no use in really trying to get anything I want because I probably won't get it'.

Brian was encouraged to apply for counselling and consult his GP concerning his high levels of anxiety and depression.

Brian explained that he did not attend any counselling sessions because

"The course was finishing ... one of the things of depression...they say 'pull yourself together'... I would just like to crawl into the earth and finish 'cos I thought at least I don't have to be part of the group of people that I was forced to be in throughout the course."

He is planning to defer submitting his final thesis and 2 re-sit exams until next year.

12. Sarah

Sarah was a 19-year-old female, full-time, 1st year, undergraduate student who was screened at 13 for dyslexia but identified as being dyslexic at 16 years and had extra exam time allowed at college.

"I was quite happy when I found out I was dyslexic 'cos I was...like... Oh great, I'm not stupid, this is the reason I'm not doing very well in exams."

She currently attended 1:1 study skills support with a Specialist Dyslexia Support Tutor. Her friends on her course were aware she was dyslexic and she was OK with this. She thought some of the tutors were also aware of her dyslexia but she added

"I have a learning support plan which I think they are supposed to have seen but I'm pretty sure they haven't. For exams, I need extra time, coloured paper and a bigger font size but I don't think my lecturers are aware"

Triggers identified by Sarah

Sarah is very conscious of her history of needing support for her dyslexia and of the negative connotations of having the 'label'. She reported that the extreme pressure she feels under with her academic work frequently causes her to be ill.

"I have had more issues since coming to uni... doing more independent work is much more difficult."

"I really struggle with exams and struggle in the preparing and the stress of exams. I do lots of revision ... but when I get into the exam the stress hits me and I usually freeze up at the beginning."

She is frequently embarrassed that she misunderstands some of her academic work and does not think some of her tutors mark her work for content.

She becomes very anxious when she experiences IT issues:

"On Saturday, my laptop broke and that stressed the hell out of me."

Strategies Sarah uses to avoid CI:

Sarah relies on her 1:1 study skills support and the use of her assistive software. She walks away from stressful situations when possible.

"I lost all motivation and couldn't bring myself to do anything. I started trying to work but it wasn't happening so I walked away."

"I have to walk away and take a break or do something different to take my mind off it to stop myself from freezing up... It doesn't always work."

She often twiddles with her jewellery to help her to concentrate and avoid fidgeting.

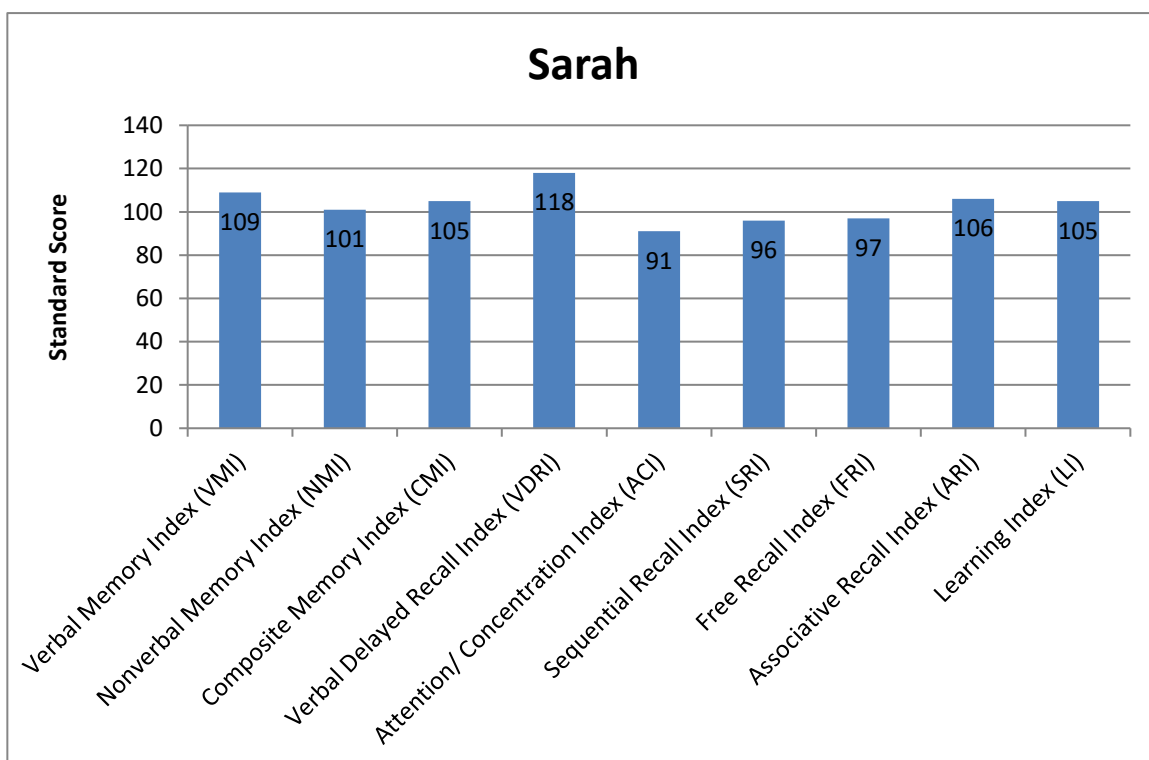
Strategies Sarah has successfully used from this project:

Sarah has found having the opportunity to meet and talk frequently to be most beneficial for stress relief. She has also found Mindfulness meditation, using an affirmation band and visualising techniques to be useful in reducing anxiety.

The researcher suggested Sarah tried recording lectures and seminars using a Dictaphone and she has found this less stressful.

She has also found the new exam techniques beneficial, even though she has 1:1 support.

TOMAL-2 Profile



Standard Scores

Above Average

VDRI

Average

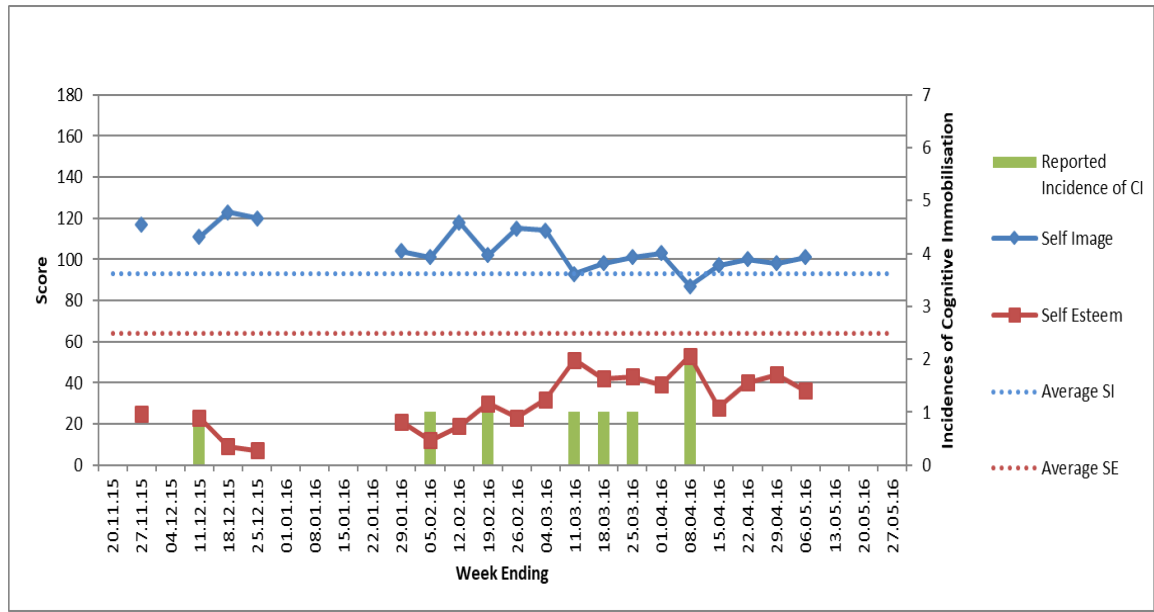
VMI, NMI, CMI, ACI, SRI, FRI, ARI LI

Fluctuating Emotional Status (Incomplete Data Submitted)

Sarah reported 8 incidences during 19 weeks reported

(Frequency of CI = 0.42).

The Self Image Profile for Adults (SIP-AD) and Frequency of Incidence of Cognitive Immobilisation

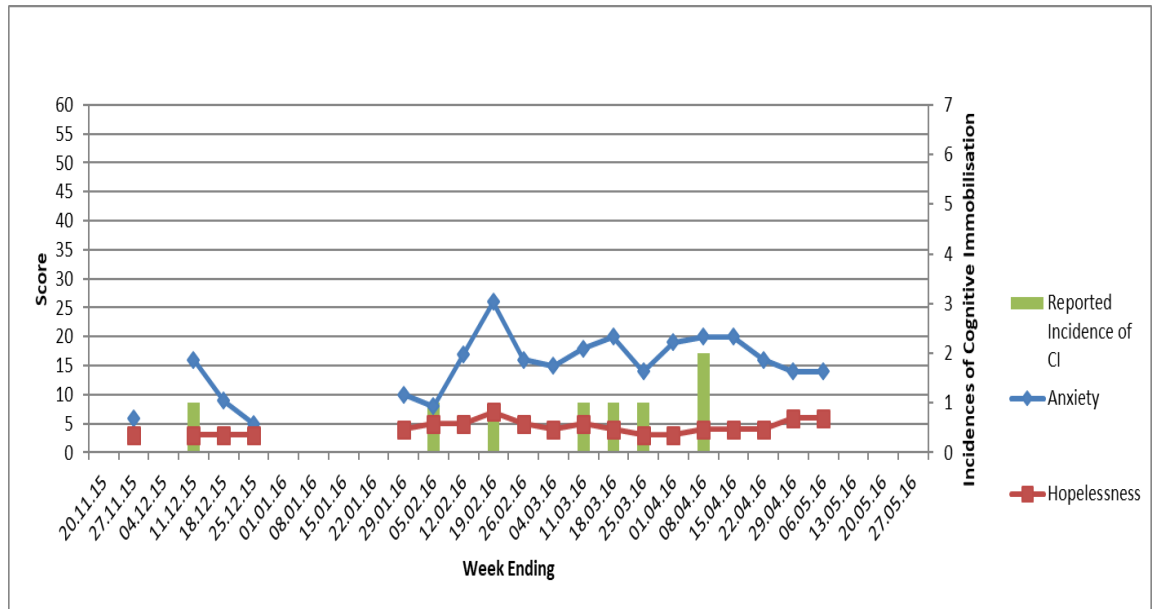


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Sarah experienced incidences of CI when she had assignments due for submission, especially if more than one was due on the same day, as in week ending 08/04 when she also attended an interview. No CI was recorded during and after the Xmas period until week ending 05/02 when the next assignment was due; nor were any incidences of CI recorded after week ending 08/04 after the last written assignments were submitted.

Sarah's self-image levels fluctuated slightly during the reported period, dipping in response to incidences of CI, but remaining just above average apart from a below average level recorded during week ending 08/04.

Sarah's self-esteem levels were always above average but the fluctuations mirrored those of the self-image levels, with the lowest level also recorded for week ending 08/04, but still above average.

Sarah's BAI Levels fluctuated mostly between mild and moderate range, showing increased anxiety coinciding with incidences of CI. Her anxiety level was self-reported within the severe range during week ending 19/02 when her laptop was broken. Sarah was not concerned about her anxiety levels, commenting that this was how she usually felt within an academic environment. The researcher suggested anxiety may exacerbate her frequent illness and suggested she should consult her GP (no comment or feedback).

Sarah's BHI levels hardly fluctuated within the minimal and mild ranges throughout the self-reported period and did not increase in response to rises in anxiety levels nor incidences of CI. This profile suggests an internal locus of control.

13. Les

Les was a 28-year-old male, full-time, 3rd year, undergraduate student who was identified as being dyslexic at 24 years. His one-to-one study skills support sessions with a Specialist Dyslexia Support Tutor were delayed as his funding has been held up due to application anomalies. Some tutors and some of the other students on his course were aware he was dyslexic and it did not bother him that they knew, although he added,

"I am the only one on the course where English is my first language, so it is difficult getting your message through..."

However, he detected a lack of dyslexia awareness among tutors –

"... they do the best they can but academic support is not there with some tutors".

He has been told he can only ask for extensions 2 weeks before submission dates.

Triggers identified by Les

Les believed having the 'label' of being dyslexic has caused him to be bullied and he has been unsuccessful in his attempt to separate social and academic stress.

"I have no friends on the course...no matter how I tried they never wanted to involve me in anything...it was awful..."

He stated,

“I freeze up frequently whenever I am doing academic work”,

and added that he believes his stress and anxiety levels exacerbate his frequent bouts of illness.

“Last year I was freezing up every few minutes and bursting into tears...I was always anxious... I was, like, worked up.”

He believed the delay in the provision of his 1:1 support caused more pressure from his academic work.

He suspected his dislike of how his course was run had given rise to personal conflicts with some tutors, for whom he felt a mutual dislike.

Strategies Les uses to avoid CI:

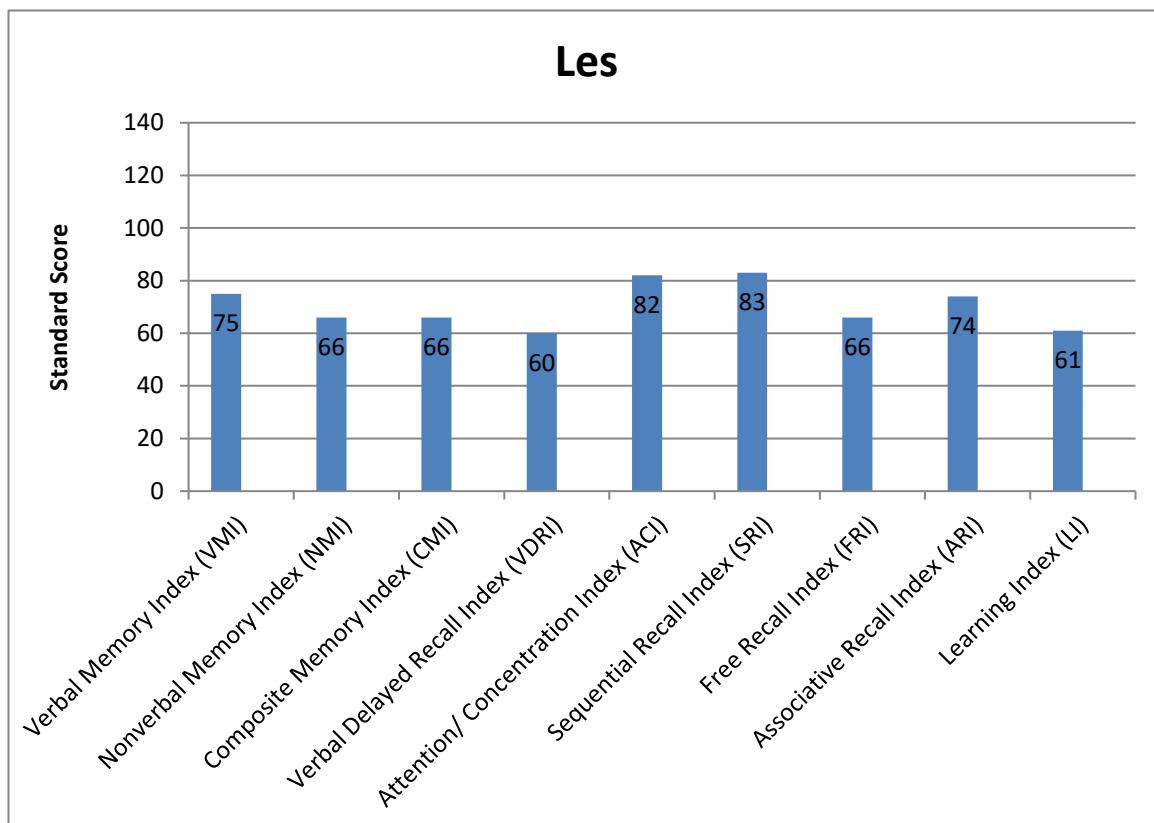
Les relied on his 1:1 study skills support, and preferred to walk away from very stressful situations.

Strategies Les has successfully used from this project:

Les identified having the opportunity to meet and talk frequently as the best stress relief strategy he had enjoyed. He was also pleased with his use of the Roman Room memory aid when revising for exams.

Being introduced to an ergonomic handwriting pen and various pencil grips has been beneficial to Les as he prefers to handwrite copious notes when planning an assignment, despite lacking a firm tripod pen grip.

TOMAL-2 Profile



Standard Scores

Below Average VMI, ACI, SRI, ARI

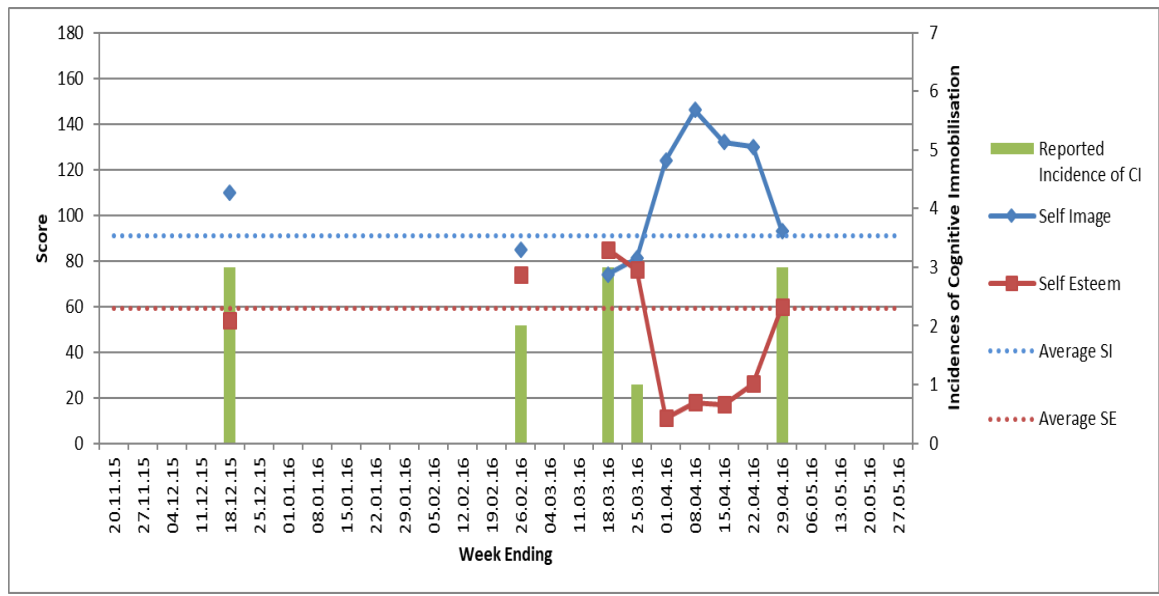
Well Below Average NMI, CMI, VDRI, FRI, LI

Fluctuating Emotional Status (Incomplete Data Submitted)

Les reported 12 incidences during 9 weeks reported

(Frequency of CI = 1.33).

The Self Image Profile for Adults (SIP-AD) and Frequency of Incidence of Cognitive Immobilisation

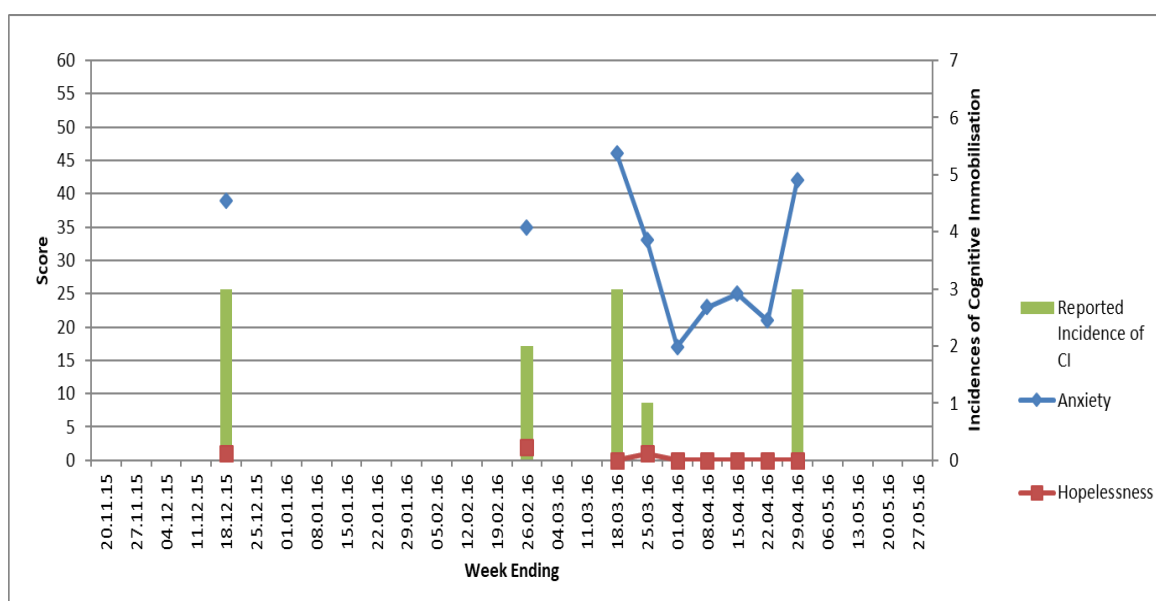


Average Self Image = 93 Average Self Esteem = 64

[NB Higher score for Self Esteem = lower level of Self-Esteem since it is a measure of the discrepancy between the scores of “where I think I am now” and “where I would like to be”, on the same scale.

A lower score for this discrepancy (=score for Self-Esteem) represents the individual feeling nearer to “where I would like to be”, suggesting a higher level of Self-Esteem. Therefore a score of 0 for self-esteem would suggest the highest level of self-esteem as the individual feels ‘they are where they would like to be at the present time’.]

Beck Anxiety Inventory, Beck Hopelessness Scale and Frequency of Incidence of Cognitive Immobilisation



Key	
Beck Anxiety Inventory	
Score	Descriptor
0 - 7	Minimal anxiety
8 - 15	Mild anxiety
16 - 23	Moderate anxiety
26 - 63	Severe anxiety
Beck Hopelessness Scale	
Score	Descriptor
0 - 3	Minimal
4 - 8	mild
9 - 14	Moderate
>14	Severe

Les experienced incidences of CI when he had assignments due for submission, especially if more than one was due on the same day, as in week ending 29/04.

Les's self-image levels fluctuated during the reported period, dipping in response to incidences of CI, but remaining above average, apart from below average levels recorded during weeks ending 18/03 and 25/03 as he worked over the Easter break.

Les's self-esteem levels mirrored the fluctuation of the self-image levels and were above average apart from weeks ending 26/02, 18/03 and 25/03 where the levels dipped below average, corresponding to incidences of CI.

Les's BAI Levels fluctuated between moderate and severe ranges, with reports of severe anxiety coinciding with incidences of CI.

Les responded that he “...*was not interested*...” in seeking support from the University’s Counselling Service or consulting his GP, at the researcher’s suggestion that such levels of anxiety may exacerbate his frequent bouts of illness.

Despite his reported anxiety levels, Les’s BHI levels only fluctuated slightly and were always reported as being within the minimal range, showing no increase during reported incidences of CI.

Despite his previous comments on being ‘labelled’ as dyslexic, Les considers,

“The label is sometimes counterproductive, but I’ve never been like that. I never let things defeat me – that’s what I’m like”.

He added, *“I thrive on pressure”*.

These comments suggest a profile with an internal locus of control, which is supported by Les’s consistently low self-reported BHS levels, despite his anxiety levels fluctuating between moderate and severe.

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